NOVEMBER 24, 1934

Railway Age

Founded In 1856

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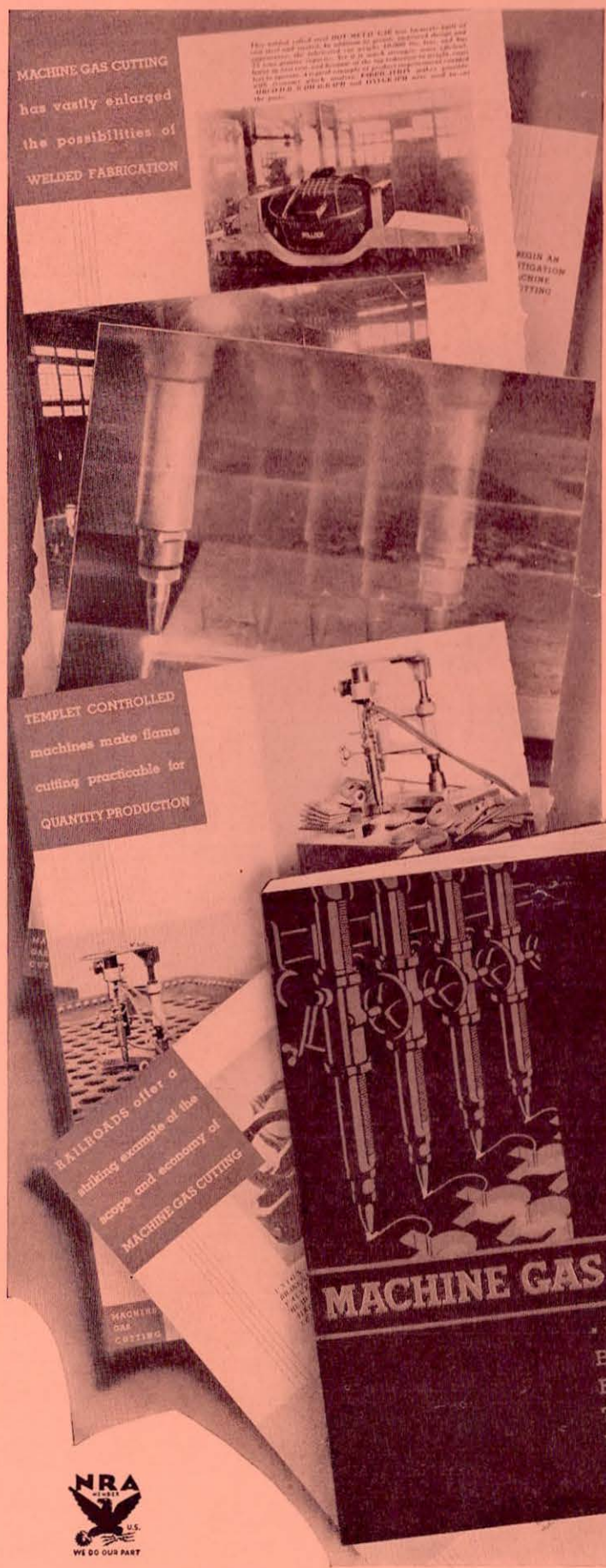
Put MACHINE GAS CUTTING on your 1935 COST CUTTING PROGRAM



MACHINE GAS CUTTING offers such exceptional possibilities for saving time and cutting costs in the making of equalizers, levers, links, hangers, and a hundred and one other locomotive and car parts, that no railroad economy program can be considered complete, which does not contemplate the use of the process. This holds true as well for locomotive and car manufacturers.

AIRCO'S RAILROAD DEPARTMENT is prepared to provide heads of the mechanical divisions of railroads and of the production departments of locomotive and car builders with complete information and data regarding the MACHINE GAS CUTTING process and its application to the specific needs of individual roads and companies. This service is freely given without obligation.

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General Offices: 60 East 42nd St., New York, N. Y.
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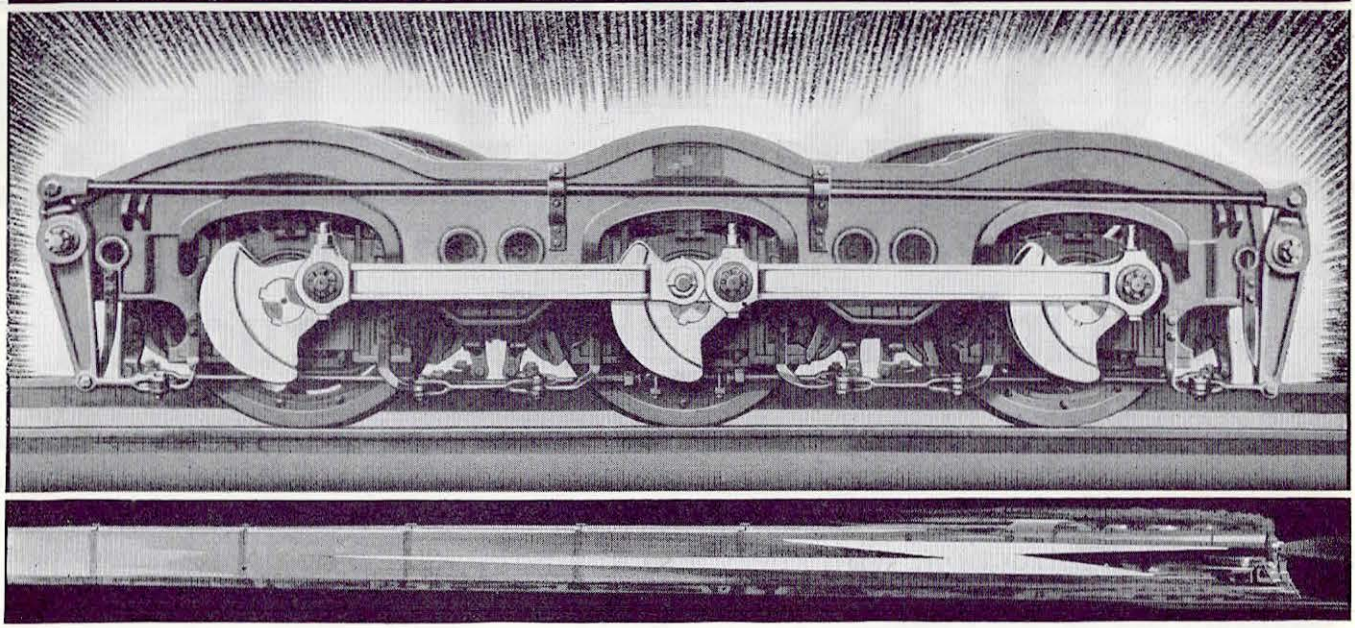
Railroad Shop Executives and heads of metal working companies are invited to write for this 92-page book which fully tells the story of MACHINE GAS CUTTING, with numerous examples of its use.

AIRCO'S complete line of machines are illustrated and described. Write for your copy—today.

NRA MEMBER U.S. WE DO OUR PART

Published weekly by Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter. January 4, 1933, at the Post Office at Philadelphia, Pa., under the Act of March 3, 1879.

NO SPEED TOO HIGH-



for this
NEW HIGH-WHEEL AUXILIARY

THIS NEW Bethlehem Auxiliary Locomotive is designed just for use on modern high-wheel passenger and fast-freight engines.

Its tractive characteristics supplement those of the high-wheel engine most effectively. Its design and construction are such that no speed at which these engines ever operate is high enough to cause undue wear and tear on the Auxiliary.

The new Bethlehem Auxiliary effectively helps the main engine up to a speed of 25 to 30 miles per hour. It adds from 14,000 to 18,000 pounds of tractive force. Six driving wheels assure ample adhesion. The large wheels and short coupling rods keep the stresses in the rods and crank-arms low. This Auxiliary will stand speeds up to 100 miles per hour, or even more.

Equipped with the new Bethlehem Auxiliary, an Atlantic-type locomotive becomes a Pacific-type in tonnage rating, without the higher maintenance that goes with the extra pair of drivers and heavier reciprocating parts. Similar advantages are gained with other types of motive power when this new Auxiliary is applied.

By incorporating the new Bethlehem Auxiliary in the design of fast, super-power engines, the wheels can be made large enough to keep maintenance low in spite of high running speeds. The Auxiliary will take care of the starting.

BETHLEHEM STEEL COMPANY
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District Offices: Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Houston, Indianapolis, Kansas City, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, St. Paul, Washington, Wilkes-Barre, York. *Pacific Coast Distributor:* Pacific Coast Steel Corporation, San Francisco, Seattle, Los Angeles, Portland, Honolulu. *Export Distributor:* Bethlehem Steel Export Corporation, New York.

BETHLEHEM STEEL

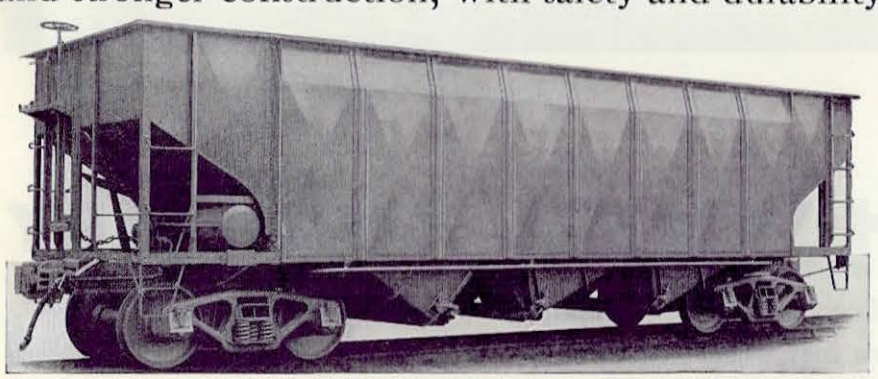
BETHLEHEM AUXILIARY LOCOMOTIVE

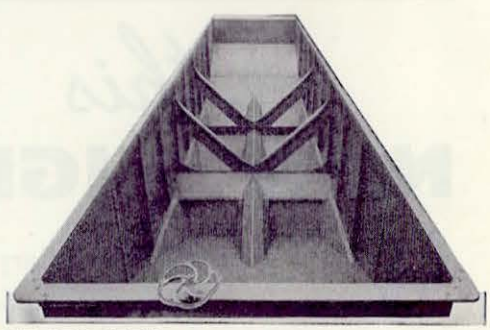
USS COR-TEN

THE NEW "TRANSPORTATION" STEEL

For Lighter Weight Construction

U S S COR-TEN is a low chromium copper silicon steel of high tensile strength and with an atmospheric corrosion resistance conservatively estimated at from four to six times that of ordinary open hearth steels. U S S COR-TEN insures lighter and stronger construction, with safety and durability.





NEW LIGHT WEIGHT HOPPER CAR — BUILT OF U S S COR-TEN STEEL
Capacity 138,000 — Load Limit 139,000 — Light Weight 30,000

A major cost of railroad operations is in moving dead weight and empty cars. U S S COR-TEN is a practical solution to this problem of excessive weight. *Costly dead weight is converted into increased capacity for pay load at no increase in operating costs.* This is a factor for added profits. As a material for weight-saving railway equipment, U S S COR-TEN Steel offers unique possibilities and wide adaptability. A striking example of this fact is in the hopper car illustrated, designed and constructed by one of the leading car building companies. This car weighs only 15 tons and yet is capable of carrying 69½ tons—a ratio of *pay load* to dead weight of 4.63 to 1.

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AMERICAN STEEL & WIRE COMPANY, *Chicago* COLUMBIA STEEL COMPANY, *San Francisco*
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Pacific Coast Distributors—COLUMBIA STEEL COMPANY, San Francisco, Calif. *Export Distributors*—UNITED STATES STEEL PRODUCTS COMPANY, New York, N. Y.

United States Steel Corporation Subsidiaries

USS HIGH-TENSILE STEELS

Supplied in Plates, Shapes and Bars—also Strips, Sheets, Light Plates, Rods, Wire and Wire Products, Pipe and Tubular Products

IN addition to U S S COR-TEN described on the opposite page, investigate also the cost-saving advantages of U S S MAN-TEN and U S S SIL-TEN in passenger and freight cars of lighter weight, and where great corrosion resistance is not a factor.

These grades of U S S High Tensile Steel have been carefully developed to meet a multiplicity of transportation requirements, particularly in the construction of cars rapid-transit equipment, trucks and buses.

The range of rolled sections and shapes of U S S High Tensile Steels is being extended as rapidly as additional engineering and commercial requirements are indicated. Equipment designers are using these moderate-cost alloy steels in such a manner as to realize every advantage of weight-reduction, strength, durability, efficient and economical operation.

Not only the bodies of rolling stock but also the underframes and truck parts may be substantially lightened through new design. Increased savings in power, and increased revenue through greater carrying capacity, begin with the use of new light-weight equipment. The investment in such improved facilities will rapidly pay for itself and earn profits.

	ORDINARY OPEN HEARTH	USS COR-TEN	USS MAN-TEN	USS SIL-TEN
YIELD POINT (Lb. / Sq. In.)	25 to 35,000	50 to 60,000	55 to 65,000	45,000
TENSILE STRENGTH (Lb. / Sq. In.)	35 to 50,000	65 to 75,000	80 to 90,000	80 to 95,000
ELONGATION (% in 2 In.)	34 to 25	27 to 22	25 to 20	23 to 18
ALL THESE STEELS ARE READILY WELDED AND FABRICATED				

NOTE : If Steels of still higher tensile strength and corrosion resistance are required, we recommend our U S S STAINLESS and Heat Resisting Steels—the practical maximum of these qualities being reached in U S S 18-8.

USS MAN-TEN

—a lower priced medium Manganese Steel of impressive strength, for applications where corrosion-resistance of U S S COR-TEN is not required.

USS SIL-TEN

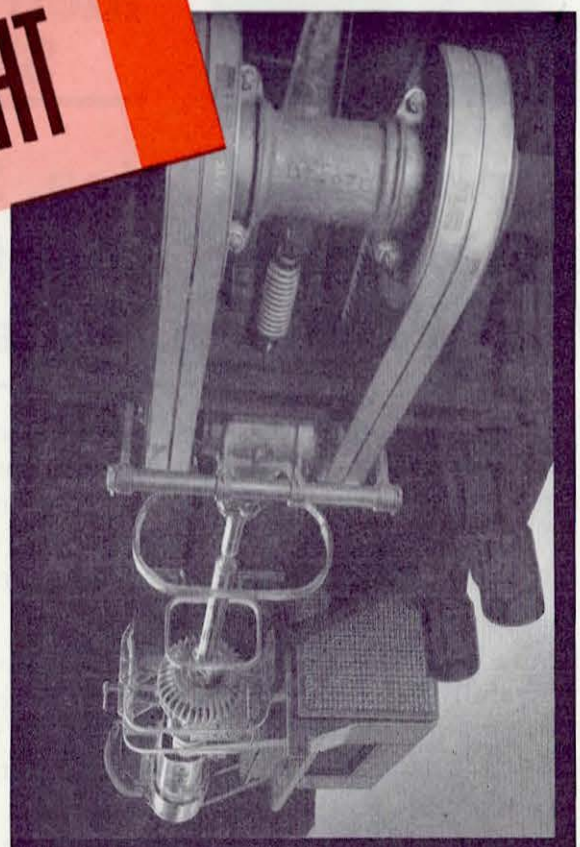
—a strong structural Silicon Steel of still lower price, for applications where neither the atmospheric corrosion resistance of U S S COR-TEN, nor the great strength of U S S MAN-TEN is required.

Address the Manufacturing Companies shown on Opposite Page

United States Steel Corporation Subsidiaries

For GREATER EFFICIENCY USS

DIRECT DRIVE DECREASES WEIGHT



Weight is an important consideration in air conditioning equipment. It adds to the power required . . . it adds to the cost.

Follow then the direct drive of the Pullman System — axle belt . . . gear box . . . drive shaft . . . speed control . . . compressor belt. Simple mechanical units and a speed control 85% efficient.

The Pullman Direct Drive System eliminates the necessity of providing large generators and high-capacity batteries . . . costly and weighty.

CAREFUL RECORDS HAVE SHOWN PULLMAN PERFORMANCE TO BE 99 4/10% PERFECT. RELIABILITY IS THE FIRST REQUIREMENT IN AIR CONDITIONING

PULLMAN CAR & MANUFACTURING CORPORATION

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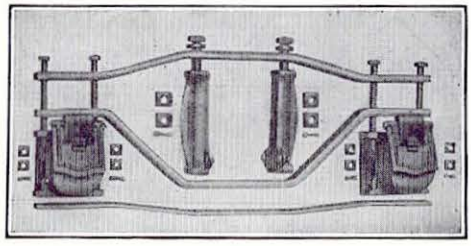
PULLMAN

DIRECT DRIVE AIR CONDITIONING SYSTEM

LOOK AHEAD TO 1936

An edict of the American Railway Association provides that freight cars equipped with arch bar trucks will not be accepted in interchange after January 1st, 1936.

Arch bar trucks replaced now with cast steel integral box side frames will insure substantial savings and will modernize existing freight cars for safe and economical service when they are needed.



ARCH BARS
(35 PIECES)

IMPROVED DOUBLE TRUSS SIDE FRAME (ONE PIECE)

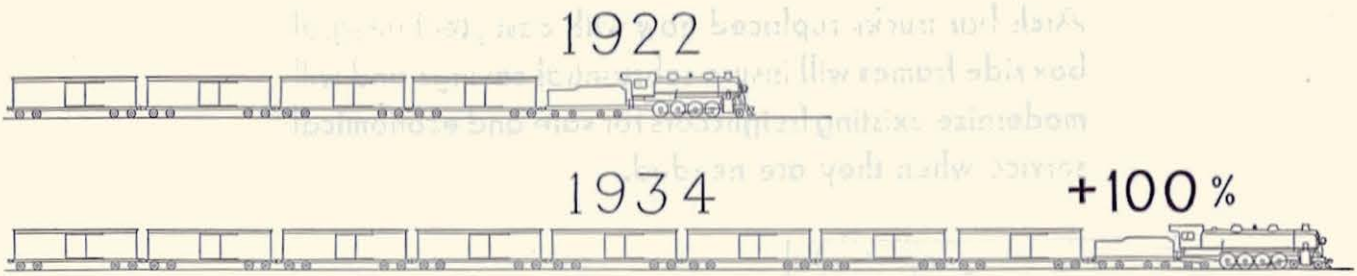
Compare the cost of maintaining an assembly composed of 35 or more separate pieces with that of one substantial steel casting.

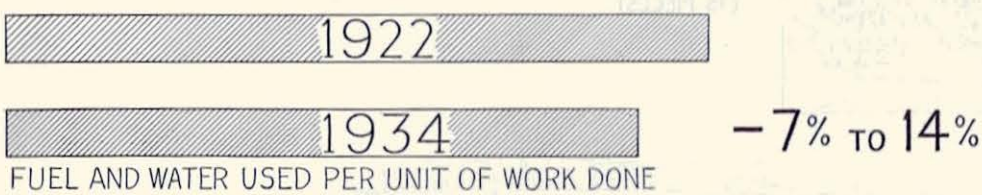
The high supervision and maintenance expense of the arch bar truck together with costly delays to traffic, justify in a few years the cost of its replacement with the one piece cast steel side frame.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

WHAT WILL THE MODERN LOCOMOTIVE DO?





The chart shows two results of the use of modern locomotives replacing those built twelve or more years ago.

I. Hauling capacity at speeds of 30 miles per hour or over is doubled.

II. Fuel and water consumption per unit of work are reduced from 7% to 14% depending on the characteristics of the locomotives replaced.

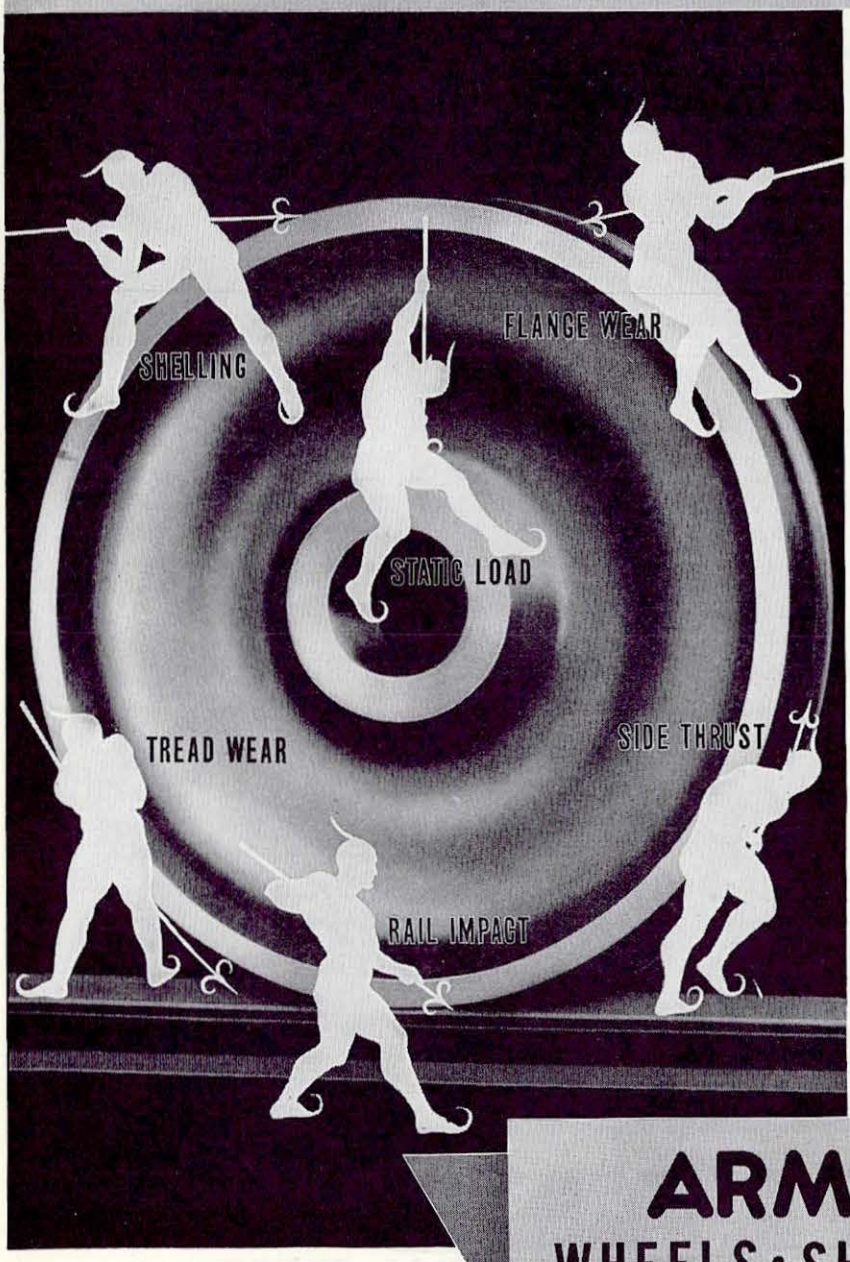
Modern locomotives enhance the competitive position of the railroads and at the same time reduce repair and operating costs—all resulting in greater net operating income.

It takes Modern Locomotives to make money these days!

THE BALDWIN LOCOMOTIVE WORKS

PHILADELPHIA

They thrive on PUNISHMENT



Put ARMCO WROUGHT STEEL WHEELS under your cars. Watch them wear and wear, roll up more profitable mileage, *save* money and earn money for your road. From twenty-six years of intensive wheel-making experience comes their sturdiness, their stamina, their ability to resist the punishment of speed and load. Whether you choose ARMCO ONE-WEAR WHEELS FOR 50-ton equipment or ARMCO MULTIPLE-WEAR WHEELS for heavy rolling stock, you can be sure of utmost safety, coupled with long-wearing, profitable mileage. An experienced ARMCO MAN will be glad to talk it over with you. Just call him in—through our nearest office.

Subsidiary of the American Rolling Mill Co.
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WHEELS · SHEETS · PLATES
for every Railroad need

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Filtering off precipitates in Dearborn's regular water analysis.

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Where the "Case Method" in Water Conditioning Originates

Correction of water troubles by the "Case Method" originated with Dearborn forty-seven years ago. Continued use of the Dearborn Laboratories in water analysis for our customers and research for improvement of methods and treating materials have produced the effective and economical results which are standard water treating practice today.

The "Case Method" means (1) accurate analysis of water supplies in the Dearborn Laboratories, (2) a survey of operating conditions by a Dearborn Service Engineer, (3) expert opinion on reagents best adapted to correct the undesirable conditions shown, (4) careful compounding of treatment in the Dearborn Factory, (5) constant supervision by responsible Dearborn chemists and engineers, (6) the Dearborn Service men who, in close cooperation with water engineers and departments, assist in creating the most workable and efficient systems of water control.

The results of the "Case Method" are in keeping with the scientific accuracy of its operation. The economies it effects in comparison with other methods have withstood the one real test—the test of time. Survey of operating conditions, the laboratory water analyses and recommendations are made without charge. Inquiries invited.

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310 S. MICHIGAN AVE., CHICAGO 205 E. 42nd ST., NEW YORK CANADIAN OFFICE and FACTORY: TORONTO

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In Service to Industry Since 1887

Silica Determination in the Dearborn Laboratories.

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Save Weight *and add* Steaming Capacity

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Vital Factors *for* High Speed Lightweight Locomotives

149 POUNDS

WEIGHT OF BACK END PER SQUARE FOOT OF FIREBOX HEATING SURFACE

Every foot of firebox heating surface carries with it non-productive wrapper sheet, staybolts, radials, braces mudring and lagging.

21 POUNDS

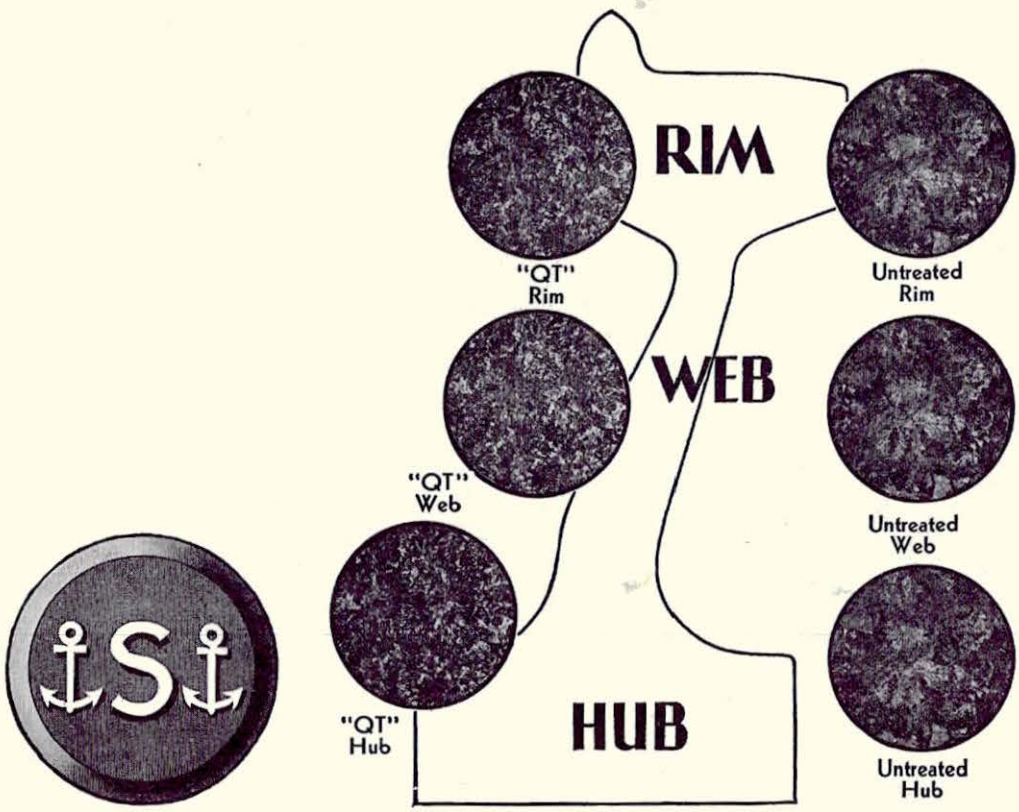
WEIGHT OF SYPHONS PER SQUARE FOOT OF HEATING SURFACE

Every pound of SYPHON heating surface is productive — with maximum efficiency. Syphons add ideal heating surface and boiler horsepower at moderate cost, and with minimum weight.

Increased Heating Surface
Increased Circulation
Improved Performance
Reduced Maintenance • Fuel Economy
Safety in Case of Low Water

LOCOMOTIVE FIREBOX COMPANY
NEW YORK CHICAGO MONTREAL

WHERE YOU TEST



YOU WILL FIND THE SAME FINE GRAIN STRUCTURE IN A STANDARD "QT" QUENCHED and TEMPERED WHEEL

THESE photomicrographs show the difference in grain structure between an untreated wheel and a "QT" wheel which is quenched and tempered throughout. Uniformity of grain structure throughout the "QT" Wheel (not obtainable in other processes of heat treatment) illustrates the freedom from internal stresses. The grain refinement in the rim of the "QT" Wheel, as compared with the untreated wheel, coupled with the increased hardness secured by quenching and tempering assures greater life.

STANDARD STEEL WORKS COMPANY

SUBSIDIARY OF THE BALDWIN LOCOMOTIVE WORKS

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BRAKE Shoes did not reach their present state of development and efficiency in one step.

The brake shoe testing machine, the chemical laboratory, the foundry and actual service tests all played their parts in the development of American Brake Shoes.

Operating conditions are constantly changing, but as the conditions of Yesterday and Today have been met, so will the braking problems of Tomorrow be solved by The American Brake Shoe and Foundry Company.

"Diamond-S" Brake Shoes have kept pace with the times and are still the most efficient and economical to use for any service.

The American Brake Shoe and Foundry Co.

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Consistently Positive Operation—Long or Short Trains

Signals Always Distinct—No Interference Nor Overlapping

Wear Does Not Affect Consistent Operation

Maintenance Costs are Very Low

A SUPERIOR SIGNAL VALVE

WESTINGHOUSE AIR BRAKE COMPANY

General Office and Works, WILMERDING, PA.

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WHERE SAFETY IS CONCERNED

Too often the expression, "As good as the Air Brake", is taken seriously. True, we appreciate this subtle recognition of leadership but, it is well to remember that nothing short of genuine Bendix-Westinghouse Automotive Air Control is capable of delivering genuine Air Brake performance. This fact alone is in no small way responsible for the sweeping acceptance Bendix-Westinghouse Equipment has met in the modern motor transport field. Featured as standard, by the world's foremost operators and manufacturers, Bendix-Westinghouse Control numbers among its most enthusiastic users those who have made their selection thru actual comparsion with contemporary equipment.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY, PITTSBURGH, PA.

★ GENUINE BENDIX-WESTINGHOUSE CONTROL IS NOW AVAILABLE FOR LIGHTER VEHICLES AT A COST UNPRECEDENTED IN AIR BRAKE HISTORY

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Modern equipment and materials are a necessity if competition and new economic conditions are to be met successfully and profitably.

The purpose of The Association of Manufacturers of Chilled Car Wheels is wholly for keeping CHILLED CAR WHEELS in advance of requirements for design, strength and service, for use under all railway equipment now built or contemplated.

Deferred maintenance of equipment requires attention in order that recovery of business will not be slowed up.

Solve your wheel problems now by standardizing on the CHILLED CAR WHEEL.

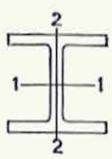
ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS
332 S. MICHIGAN AVE. CHICAGO, ILLINOIS

9 New "CBP" SECTIONS for BEARING PILES

Rolled steel has proved so efficient in bearing pile work that now we offer nine new sections developed particularly for this purpose. These complete a series of twelve sizes, as listed below. The new sections are designated by the prefix letters CBP.

You should see the data we have developed on this subject of bearing piles. To those unacquainted with this modern use of steel, these figures present convincing proof of the economy and efficiency of steel bearing piles. We welcome an opportunity of discussing this subject with you and would particularly like to point out the efficiency and adaptability of these new sections.

SECTION INDEX AND NOMINAL SIZE	Depth of Section	Wgt. Per Foot	Area of Section	FLANGE		Web Thickness	AXIS 1-1			AXIS 2-2		
				Width	Thickness		I	S	r	I	S	r
	In.	Lbs.	In.²	In.	In.	In.	In.⁴	In.³	In.	In.⁴	In.³	In.
CBP-146	14.18	117	34.42	15.599	.778	.779	1233.5	174.0	5.99	492.8	63.2	3.78
14 X 16	13.99	102	30.00	15.500	.681	.680	1060.9	151.7	5.95	423.1	54.6	3.75
CBP-145	13.86	89	26.19	14.696	.616	.616	909.1	131.2	5.89	326.2	44.4	3.53
14 X 14½	13.70	73	21.46	14.518	.538	.438	762.2	111.3	5.96	274.5	37.8	3.58
CBP-124	12.12	74	21.76	12.217	.607	.607	566.5	93.5	5.10	184.7	30.2	2.91
CB-124	12.12	65	19.11	12.000	.606	.390	533.4	88.0	5.28	174.6	29.1	3.02
CBP-124	11.78	53	15.59	12.046	.437	.436	394.8	67.0	5.03	127.4	21.2	2.86
12 X 12												
CBP-103	10.01	57	16.76	10.224	.564	.564	294.7	58.9	4.19	100.6	19.7	2.45
CB-103	10.00	49	14.40	10.000	.558	.340	272.9	54.6	4.35	93.0	18.6	2.54
CBP-103	9.72	42	12.35	10.078	.418	.418	210.8	43.4	4.13	71.4	14.2	2.40
10 X 10												
CBP-83	8.03	36	10.60	8.158	.446	.446	119.8	29.9	3.36	40.4	9.9	1.95
CB-83	8.06	33	9.70	8.012	.463	.300	117.9	29.3	3.49	39.7	9.9	2.02
8 X 8												



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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 97 November 24, 1934 No. 21

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A description of this set-up, where off-track facilities and trucking operations expedite freight handling and produce important economies.

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TO A HUNDRED MILES AN HOUR SPEED

REPUBLIC

BRINGS NEW MATERIALS

Many of the limitations of material that have hampered locomotive designers have been removed by the alloy steels and irons developed by Republic Steel Corporation. » » Agathon Nickel Iron has a glass-hard surface to resist the wear encountered at high speeds combined with a tough core to withstand the increased shocks. Here is a better material for pins and bushings. » » Agathon Engine Bolt Steel takes the stretch out of engine bolts and helps keep bolted parts tight at the higher speeds. » » In addition, Toncan Iron firebox sheets and Agathon and Climax staybolts withstand the harder working of the firebox, while special alloys give added strength and toughness to axles, rods and other vital parts. » » When building new power consult with Republic on the latest developments in materials.

Republic Double Strength Steel for Transportation Industry • Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel... The Birdsboro Steel Foundry & Machine Company of Birdsboro, Pa. has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.

CENTRAL ALLOY DIVISION, MASSILLON, OHIO

AGATHON STEELS

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

TONCAN COPPER MOLYBDENUM IRON

RAILWAY AGE

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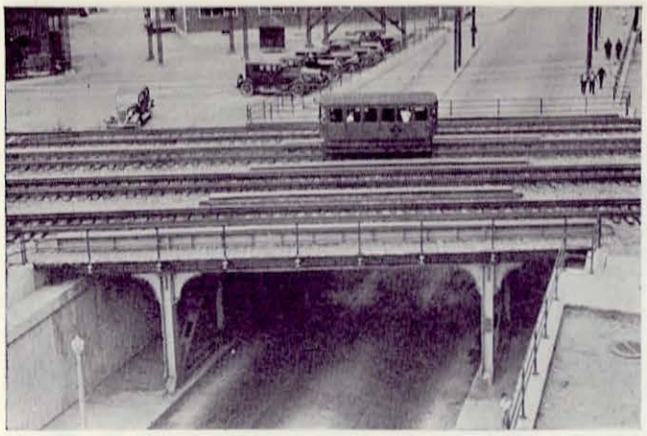


The Oak Hill Avenue Grade Separation, in the Heart of the Shoe Industry at Endicott, N. Y.

sand to a depth of 14 to 18 ft. lay a blue saturated clay of great depth. Furthermore, they disclosed that the normal ground water level was only about 8 ft. beneath the surface, or approximately 10½ ft. above the lowest level of the proposed depressed street.

In meeting this water condition, the Erie constructed a watertight underpass, consisting of gravity-type retaining walls and bridge abutments, which are keyed to and made integral with base slabs which extend continuously across the roadway area. Furthermore, the entire outer side of the boat-like bottom construction was thoroughly waterproofed to a point above the ground water level with asphalt and fabric waterproofing, and enveloped by a protection course of concrete or brick.

Excavation for the underpass was made toward the tracks from the upper ends of the approaches, employing gasoline engine-operated cranes and motor trucks, and, for the most part, was made continuous between the outside limits of the side wall footings. This permitted the construction of the wall footings integral with the underpass roadway slabs, and, of equal importance, the provision of the continuous waterproofing and protection course.

There was little difficulty in carrying out the excavation work while in gravel and sand above ground water, but this condition changed when water was reached, and, more particularly, when the blue clay was penetrated. Below the ground water level, it was necessary to maintain from one to four centrifugal pumps in operation, the largest with a six-inch discharge, to keep the cut free from water and permit construction. In spite of this constant pumping, the crawler-mounted cranes, even when on heavy plank runways, mired down severely. In one section directly south of the tracks, where one of the cranes mired in in spite of a heavy timber mat and gravel foundation, and even after an attempt to support it on pile butts, it was necessary eventually to drive a temporary pile footing to support the crane, to permit completion of the excavation.

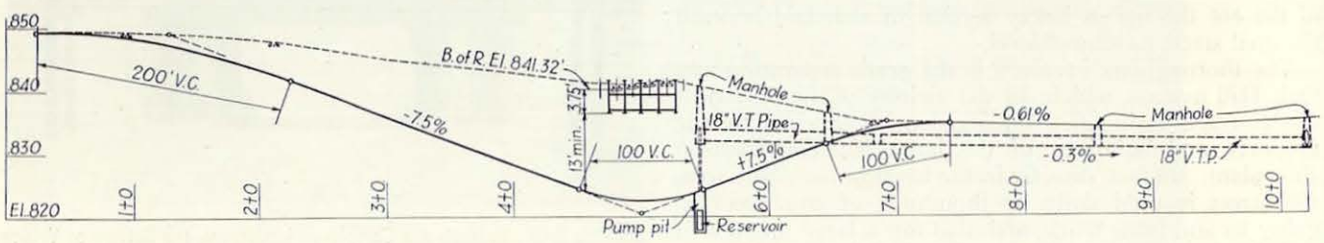
In spite of these evidences of instability of the clay when exposed, it was not planned to provide pile footings beneath any of the walls or abutments, except throughout a section of the wall on the east side, approximately 66 ft. long, directly in front of a four-story tannery building of the shoe plant, which housed considerable heavy machinery. This was because of the heavy base slab construction planned, continuous across the roadway between backs of the opposite walls and abutments, which would distribute the wall and abutment loads over a sufficient area to insure stability. In the case of the section of wall alongside the building, however, a pile foundation was considered advisable to avoid any possible settlement or shifting of the wall or the building. Furthermore, to prevent any disturbance of the building foundation, which was relatively shallow, the section of wall adjacent was built in a trench, the back face of which was supported by steel sheet piling, braced securely. After the pile foundation was driven, which included fifty 50-ft. piles in three rows, the wall, with a deep footing slab anchored over the tops of the piles, was poured. In a further effort to increase the stability of this section of wall and the ground behind it, a hipped construction was provided on the back side of the wall, with its back face tight against the sheet piling to avoid the possibility of settlement of the building which would have been present if earth back-fill had been employed.

In spite of these precautions, slight settlement of the nearest corner of the building and inward movement of the wall developed as the roadway excavation reached its final depth, a situation which required prompt action to avoid possible serious damage to the building. Immediately, therefore, employing extra forces and working 24 hrs. a day, the slab across the roadway in this area was rushed to completion, affording lateral support from the opposite retaining wall. The slab employed here was from 24 to 32 in. in thick, on top of a concrete waterproofing protection slab 6 in. thick. With the placing of these slabs, the movement of the wall was arrested.

To avoid the possibility of the roadway slab slipping laterally toward the deepest part of the underpass before the adjacent section could be completed, steel sheet piling was driven along its lower edge. Fortunately, the slab itself did not move, for the piling proved ineffective. In fact, the pressure built up in the clay beneath the slab actually forced the piling several inches away from the slab.

Abutments Put on Piles

While the roadway excavation was under way, two tracks for main line operation were carried over the street on temporary deck plate girder spans, 79 ft. in length, which were supported on timber piles outside the limits of the new abutments. These temporary spans were erected along the south half of the right-of-way, without interference of traffic, while trains were operated over two tracks at grade immediately to the north. As soon as all traffic was diverted to the tem-



Profile of Depressed Oak Hill Avenue Beneath the Erie Tracks, Showing Grades and Pump Drainage System Necessary

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Coke	16,250	29,342	21,720	+ 80.6	+ 33.7	−26.0
Forest Products	75,039	109,949	96,208	+ 46.5	+ 28.2	−12.5
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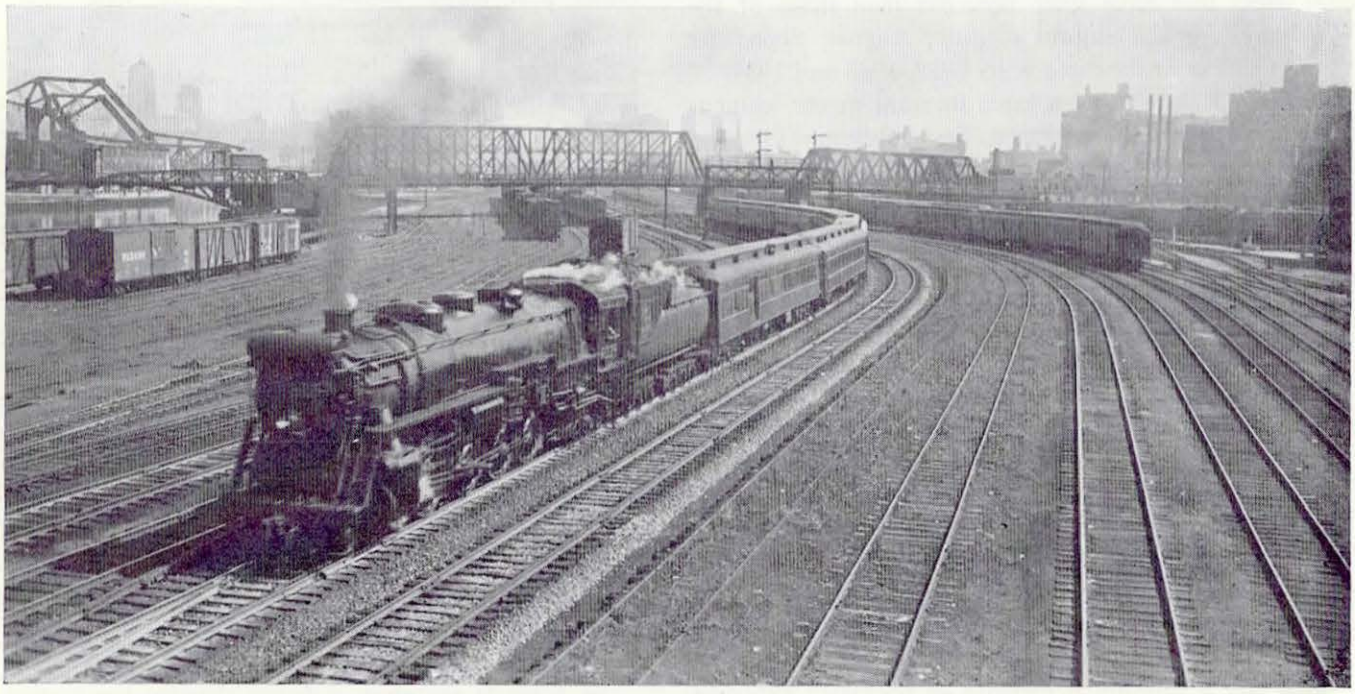

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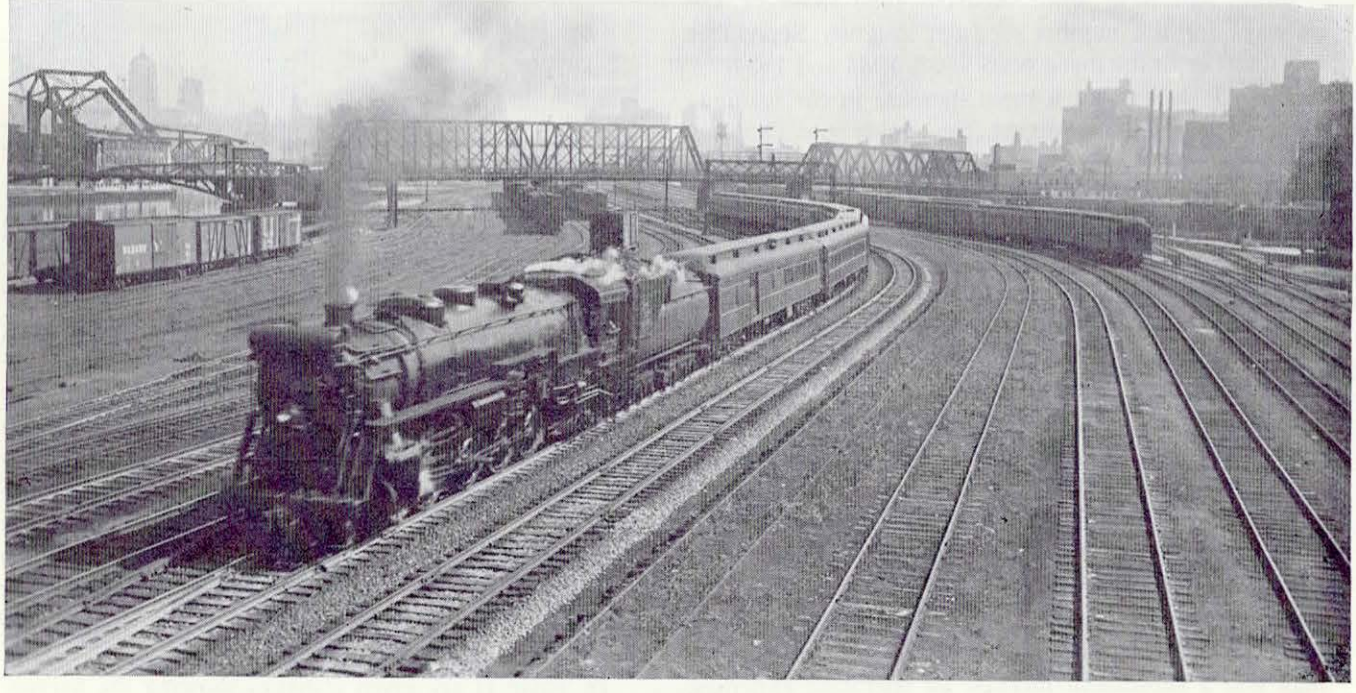

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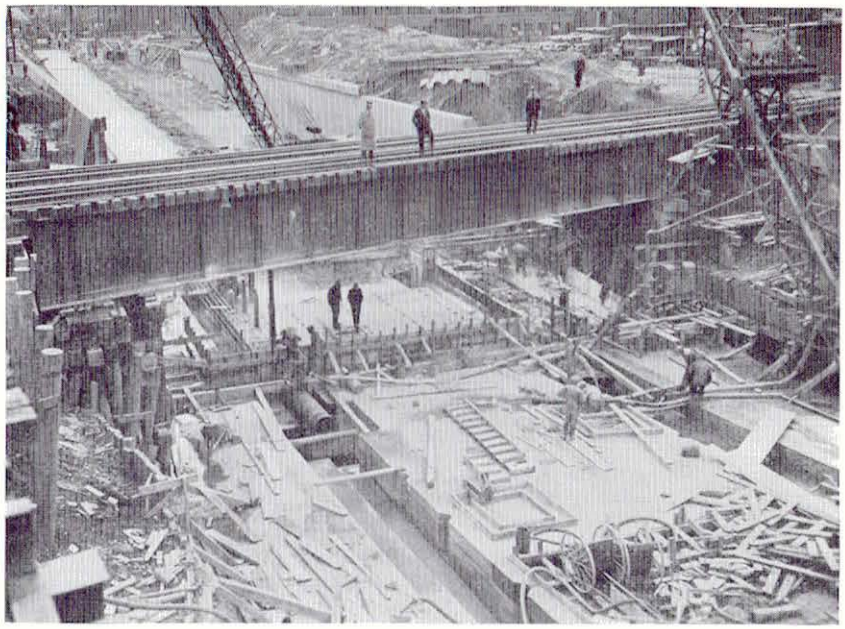


A General View Over the Work in Progress, Showing Roadway Slab Construction Through the Lowest Section of the Underpass

"Boat-Like" Construction Solves Water Problem in Underpass

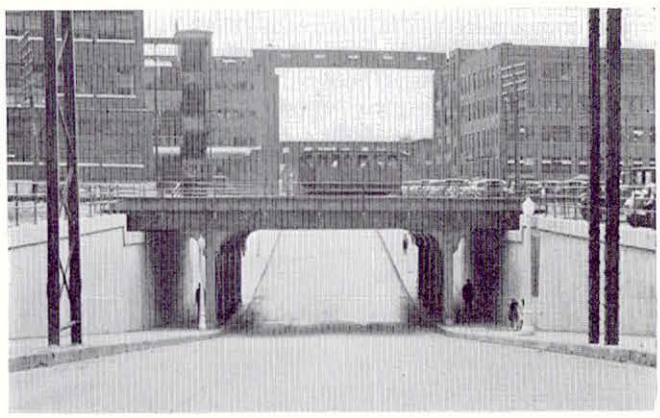
OF THE many highway grade separation projects which have been carried out on the Erie during recent years, one of the most difficult and interesting in many respects was that completed late last spring at Endicott, N. Y. This project involved only one street, but, because of the surrounding industrial condition, the most economical plan required the depression of the street the full clearance depth into a soft blue clay with an unusually high ground water level. This required that the underpass be designed practically as a concrete boat, with a thick reinforced and waterproofed bottom integral with the abutments and side walls, to resist hydrostatic pressure and prevent the infiltration of water.

This type of construction, which in itself is unusual, was complicated by the close proximity of a four-story brick building to the necessary street excavation, which caused considerable concern lest the building be damaged by settlement. In fact, a tendency to settle at the corner nearest the roadway cut, in spite of special precautions, was overcome only by prompt action in placing additional bracing and in transferring the lateral load on the adjacent retaining wall to the wall on the opposite side of the cut through a heavy section of slab laid beneath the final street pavement level.

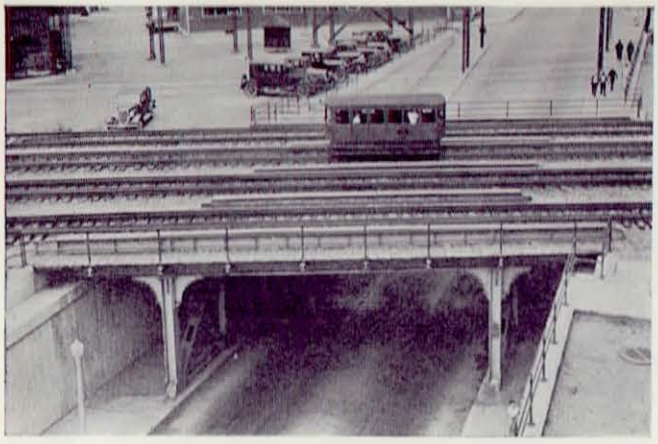
The thoroughfare involved in the grade separation was Oak Hill avenue, which, in the vicinity of the railroad's double-track main line, is flanked on both sides by the property and buildings of the large Endicott-Johnson shoe plant. In fact, directly in the heart of the plant area, the street is used daily by thousands of employees in going to and from work, and also for a large amount of trucking between the different plant buildings. This condition made it particularly desirable to separate the grades at this point, especially in view of the fact that there are approximately 30 train movements over the crossing daily, most of which are at high speed.

To effect the separation, it was planned to depress the street the full amount necessary to afford a clearance of 13 ft. beneath the railroad. In spite of the high ground water which it was known would be encountered, this plan was adopted as more economical and practicable than those of either raising the track grade or carrying the street over the railroad. As completed, the street depression extends over a distance of approximately 650 ft., with maximum grades of 7.5 per cent.

Test holes driven in the area of the deepest part of the cut disclosed that beneath strata of clay, gravel and



Looking South Through the Completed Underpass, the Bottom of Which is Approximately 10½ ft. Below Ground-Water Level



The Oak Hill Avenue Grade Separation, in the Heart of the Shoe Industry at Endicott, N. Y.

sand to a depth of 14 to 18 ft. lay a blue saturated clay of great depth. Furthermore, they disclosed that the normal ground water level was only about 8 ft. beneath the surface, or approximately 10½ ft. above the lowest level of the proposed depressed street.

In meeting this water condition, the Erie constructed a watertight underpass, consisting of gravity-type retaining walls and bridge abutments, which are keyed to and made integral with base slabs which extend continuously across the roadway area. Furthermore, the entire outer side of the boat-like bottom construction was thoroughly waterproofed to a point above the ground water level with asphalt and fabric waterproofing, and enveloped by a protection course of concrete or brick.

Excavation for the underpass was made toward the tracks from the upper ends of the approaches, employing gasoline engine-operated cranes and motor trucks, and, for the most part, was made continuous between the outside limits of the side wall footings. This permitted the construction of the wall footings integral with the underpass roadway slabs, and, of equal importance, the provision of the continuous waterproofing and protection course.

There was little difficulty in carrying out the excavation work while in gravel and sand above ground water, but this condition changed when water was reached, and, more particularly, when the blue clay was penetrated. Below the ground water level, it was necessary to maintain from one to four centrifugal pumps in operation, the largest with a six-inch discharge, to keep the cut free from water and permit construction. In spite of this constant pumping, the crawler-mounted cranes, even when on heavy plank runways, mired down severely. In one section directly south of the tracks, where one of the cranes mired in in spite of a heavy timber mat and gravel foundation, and even after an attempt to support it on pile butts, it was necessary eventually to drive a temporary pile footing to support the crane, to permit completion of the excavation.

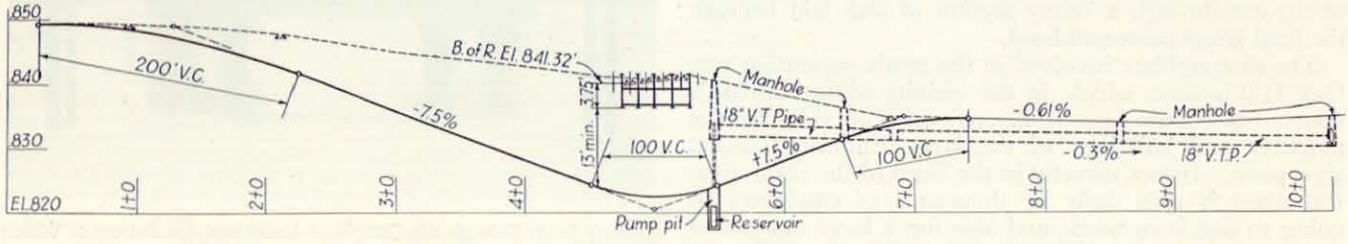
In spite of these evidences of instability of the clay when exposed, it was not planned to provide pile footings beneath any of the walls or abutments, except throughout a section of the wall on the east side, approximately 66 ft. long, directly in front of a four-story tannery building of the shoe plant, which housed considerable heavy machinery. This was because of the heavy base slab construction planned, continuous across the roadway between backs of the opposite walls and abutments, which would distribute the wall and abutment loads over a sufficient area to insure stability. In the case of the section of wall alongside the building, however, a pile foundation was considered advisable to avoid any possible settlement or shifting of the wall or the building. Furthermore, to prevent any disturbance of the building foundation, which was relatively shallow, the section of wall adjacent was built in a trench, the back face of which was supported by steel sheet piling, braced securely. After the pile foundation was driven, which included fifty 50-ft. piles in three rows, the wall, with a deep footing slab anchored over the tops of the piles, was poured. In a further effort to increase the stability of this section of wall and the ground behind it, a hipped construction was provided on the back side of the wall, with its back face tight against the sheet piling to avoid the possibility of settlement of the building which would have been present if earth back-fill had been employed.

In spite of these precautions, slight settlement of the nearest corner of the building and inward movement of the wall developed as the roadway excavation reached its final depth, a situation which required prompt action to avoid possible serious damage to the building. Immediately, therefore, employing extra forces and working 24 hrs. a day, the slab across the roadway in this area was rushed to completion, affording lateral support from the opposite retaining wall. The slab employed here was from 24 to 32 in. in thick, on top of a concrete waterproofing protection slab 6 in. thick. With the placing of these slabs, the movement of the wall was arrested.

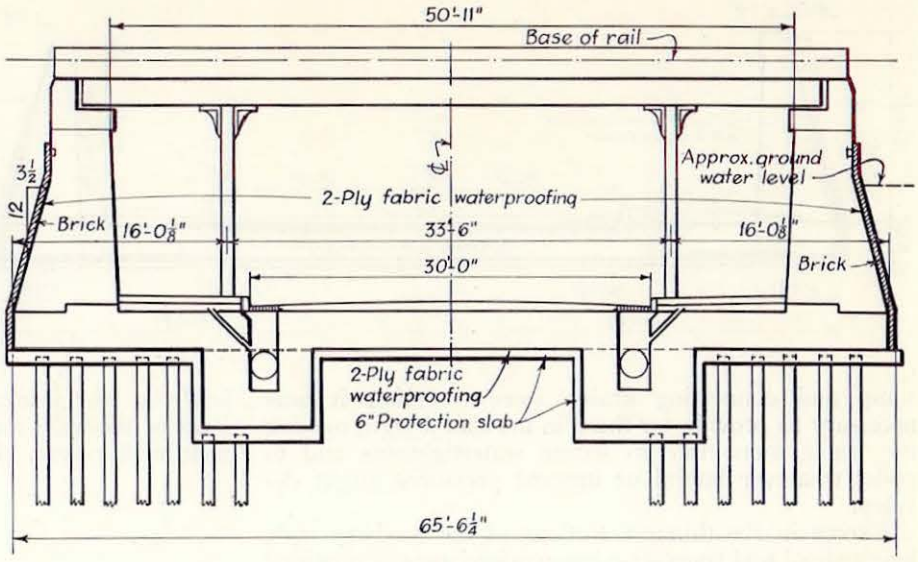
To avoid the possibility of the roadway slab slipping laterally toward the deepest part of the underpass before the adjacent section could be completed, steel sheet piling was driven along its lower edge. Fortunately, the slab itself did not move, for the piling proved ineffective. In fact, the pressure built up in the clay beneath the slab actually forced the piling several inches away from the slab.

Abutments Put on Piles

While the roadway excavation was under way, two tracks for main line operation were carried over the street on temporary deck plate girder spans, 79 ft. in length, which were supported on timber piles outside the limits of the new abutments. These temporary spans were erected along the south half of the right-of-way, without interference of traffic, while trains were operated over two tracks at grade immediately to the north. As soon as all traffic was diverted to the tem-



Profile of Depressed Oak Hill Avenue Beneath the Erie Tracks, Showing Grades and Pump Drainage System Necessary



Cross Section at the Low Point in the Grade Separation, Showing the Pile Foundation Employed Beneath the Bridge Abutments and the Irregular Shape of the Street Slab at this Point to Provide for the Subway Drainage System

porary bridge spans, complete excavation of the underpass was possible, as well as the construction of the two-track north half of the permanent four-track bridge.

In order to disturb the railroad roadbed as little as possible, excavation through the deepest part of the underpass, that is, throughout the length of the bridge abutments, was done between walls of timber sheet piling driven just back of the outside limits of the abutments. The only exception to this was directly beneath the temporary girder spans, where, because of the difficulty of driving such piling, the sides of the excavation were sloped back.

It was not the intent originally to support the bridge abutments on piles, particularly in view of the monolithic roadway slab and abutment footings planned, but in view of the unusually unstable character of the soil encountered, pile foundations were decided upon. Using 50-ft. timber piles, approximately 8,000 lin. ft. of piling was driven in each foundation. In no case did the piles reach a solid bottom. Their driving caused extensive heaving of the adjacent ground, and so disturbed the pile supports of the temporary two-track girder bridge that this structure was at one time thrown out of line as much as two feet.

The permanent bridge provided is a four-track, through plate girder structure designed for Cooper's E-70 loading, with a main span of 35 ft. between steel columns at the street curb lines, and with sidewalk spans of 11 ft. 2¾ in. at each end. The deck is of beam and steel plate construction, waterproofed with asphalt and fabric, which is protected against the cutting action of the ballast by 1¼-in. asphalt plank. Special features of the structure are that the girders, between the deck plate and their top flange angles, are encased in concrete, battered outward to form a confining trough for the track ballast, and the further fact that the top cover plate group of each girder is entirely enclosed by a copper-bearing steel plate cover. This cover, which is designed to seal the cover plate assembly against weathering and corrosion, is ⅜-in. thick, and is welded in place to steel straps at intervals along the under side of the flange angles.

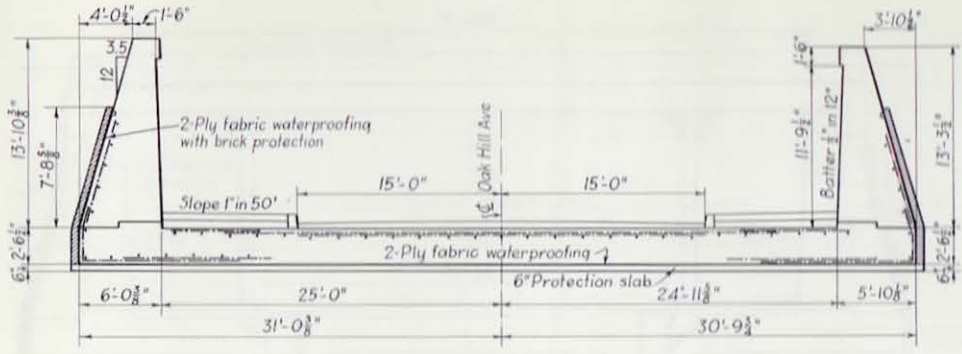
Details of Underpass Construction

The most interesting feature of the Oak Hill avenue grade separation as a whole is the watertight boat-like construction employed to keep out the high ground water and to help distribute the retaining wall and abutment loads over the soft soil encountered. This construction begins approximately 177 ft. south of the low point in the underpass, and extends continuously to a point approximately 184 ft. north of the low point, a total distance of about 361 ft. The top of the slab at both ends is at elevation 834, one foot above the high ground water level recorded in May, 1931. The low point of the top of slab is at elevation 822.65.

The thickness of the roadway slab varies with the depth of the underpass, from 12 in. at the upper ends to a maximum of 33 in. for a distance of approximately 100 ft. through the abutment area in the deepest part of the cut. This slab is continuous from back to back of retaining walls and abutments, except directly opposite the tannery building through a distance of about 66 ft., where the wall footing was constructed in a trench, which prevented making it monolithic with the roadway slab. However, here, the footing and roadway slab were locked together in a horizontal plane by means of a continuous copper tongue-and-groove type joint and steel reinforcing bars. The walls and abutments are keyed to their footings, and, therefore, to the roadway slabs, by means of six-inch offsets against inward movement.

Except through the lowest part of the underpass, essentially within the limits of the abutments, the roadway slab is flat. In the deepest part of the underpass, where a street drainage system, with manholes, a pump

Just South of the Temporary Crossing, Showing That Part of the Roadway Slab and Retaining Wall on the Right Rushed Into Place to Prevent Slipping of the Retaining Wall at the Left

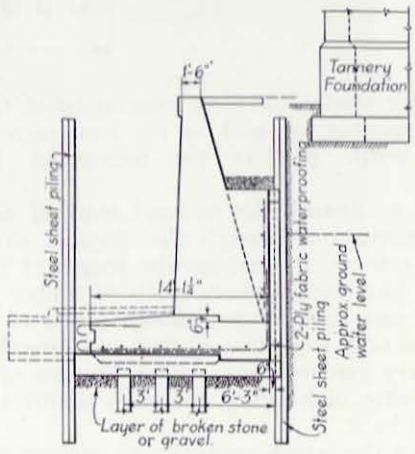


Cross Section of Roadway and Retaining Walls Just North of the Railroad Bridge, Where the Greatest Difficulty Was Encountered

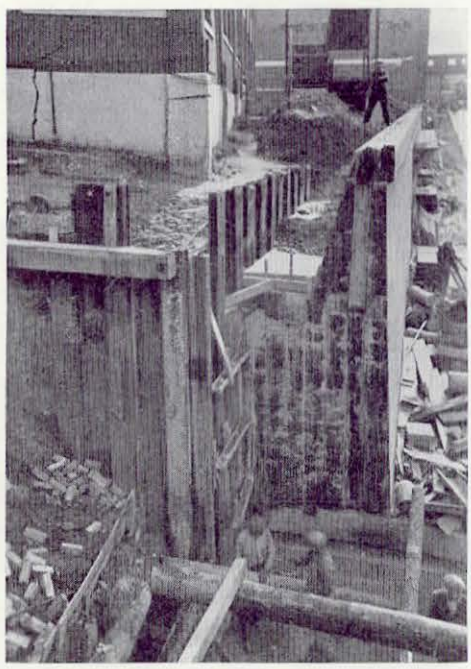
sump and connecting drains were essential, it was necessary to provide for these in the slab design, making the whole monolithic to secure watertightness and to resist whatever lateral or upward pressures might develop.

Except in the thinnest sections of the roadway slab, longitudinal and transverse bar reinforcement is provided near the bottom along the edges, and all of the transverse bars extend through the wall and abutment footings and up to anchorage in the back side of the wall or abutment masonry. Additional rod reinforcing is provided in the top of the slabs between wall and abutment faces to resist upward hydrostatic pressure. Only in the area of the slab made irregular by the provision of manholes and pipe trenches, was any special reinforcing provided. Here, rod reinforcement was placed in the base of the slab as well as the top, and also completely around the inner and outer faces of all offsets.

To insure the watertightness of the underpass against ground water, the entire roadway, wall and abutment masonry beneath the ground water level was enveloped by waterproofing, protected by either a concrete slab or brick backing. The accompanying cross sections through the underpass show the protection slab beneath the roadway slab, and how it was made watertight on its top side with asphalt and fabric waterproofing before the roadway slab was poured. These sections also show how the base protection slab was carried up the back faces of the walls and abutments in a waterproofed four-inch brick course. For the most part, the concrete protection slab was made 6 in. thick, although the thickness was increased to 12 in. at several points to meet special conditions.



Section of Retaining Wall on East Side of Avenue, Directly Adjacent to the Tannery Building, Where Special Precautions Had to Be Taken to Prevent Settlement of the Building



The Most Treacherous Point in the Job, Adjacent to the Four-Story Tannery Building—Note Sheet Piling and Bracing

Details of Underpass Drainage

As already pointed out, with the bottom of the underpass below ground water and far below city sewer levels in the vicinity, it was necessary to provide a complete independent drainage system at the undercrossing. In the system installed, six catch basins were provided, three on each side of the roadway, all of which are joined to a sump by sub-surface lines of cast iron pipe. Adjoining the sump in a dry pit, two automatically-operated, non-clogging, vertical electric sump pumps (one a spare) have been provided. These pumps, each of which has a capacity of 500 gal. per min. against a 15-ft. head, discharge into an 18-in. sewer installed back of the west abutment, which has connection with the city sewer at the north end of the project

All of the concrete used in the underpass construction, which amounted to approximately 6,500 cu. yd., was prepared in accordance with the water-cement ratio. Fifteen-hundred-pound concrete was used throughout in the protection slab beneath the walls, abutments and the main roadway slabs, while 2,500-lb. concrete was used in the roadway slabs themselves and in the walls and abutments, with the exception of a small amount of 2,000-lb. concrete which was used in the footings beneath the low sections of walls at the beginning of the roadway depression at each end.

The design and construction of the Oak Hill Avenue

underpass were carried out under the direction of Geo. S. Fanning, chief engineer of the Erie, assisted by J. W. Smith, principal assistant engineer, F. A. Howard, engineer of structures, and C. H. Splitstone, superintendent of construction, and with the collaboration of H. O. Schermerhorn, assistant chief engineer of the Department of Public Works of the State of New York. H. A. Pasman, resident engineer, was in charge of the work in the field.

The general contractor on the work was Parker & Graham, Inc., Clifton, N. J., who handled all phases of the project, except the track work and the erection of the bridge superstructures, which were done by company forces.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 10 totaled 594,932 cars, a decrease of 17,525 cars as compared with the week before but an increase of 11,859 cars as compared with the corresponding week of last year and of 58,245 cars as compared with 1932. The reduction as compared with the week before is partly explained by the fact that the week of November 10 included election day. Miscellaneous freight, coal, and live stock showed increases as compared with last year. The summary, as compiled by the Association of American Railroads, follows:

Revenue Freight Car Loading

Week Ended Saturday, November 10, 1934

Districts	1934	1933	1932
Eastern	128,818	124,502	116,685
Allegheny	110,099	108,564	97,920
Pocahontas	42,293	39,404	37,859
Southern	88,982	84,684	81,396
Northwestern	74,789	71,837	61,139
Central Western	96,902	102,877	88,524
Southwestern	53,049	51,205	53,164
Total Western Districts	224,740	225,919	202,827
Total All Roads	594,932	583,073	536,687
Commodities			
Grain and Grain Products	27,251	27,921	25,104
Live Stock	23,055	21,915	18,303
Coal	125,403	122,536	113,608
Coke	5,568	5,798	4,093
Forest Products	21,380	23,990	15,968
Ore	7,486	8,729	2,795
Merchandise L.C.L.	160,588	166,103	169,579
Miscellaneous	224,201	206,081	187,237
November 10	594,932	583,073	536,687
November 3	612,457	614,136	587,302
October 27	624,252	642,423	617,284
October 20	640,280	657,005	641,985
October 13	635,639	670,680	649,690
Cumulative Total, 45 Weeks	27,047,677	25,444,370	24,630,729

Car Loading in Canada

Car loadings in Canada for the week ended November 10 totaled 51,228, as against 51,967 cars for the previous week and 47,442 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
November 10, 1934		
November 3, 1934	1,310,098	919,748
October 27, 1934	1,097,615	791,987
November 11, 1933	1,181,863	804,660
Cumulative Totals for Canada:		
November 10, 1934	2,019,176	965,320
November 11, 1933	1,754,258	828,355
November 12, 1932	1,912,802	853,279

Some Increases Allowed In W. T. L. Class Rates

WASHINGTON, D. C.

FINDING that the western trunk line railroads have sustained their claims as to their need for increased revenues, and that the revenues yield by the readjustment of class rates and related rates between points in western trunk line territory and between points in that territory and official and Illinois territories which became effective on December 31, 1931, in compliance with the commission's decision, are less than anticipated and less than may reasonably be expected from this traffic, the commission on November 20 made public a report prescribing a further revision of the rates designed to increase the railroad revenues. An important feature of the readjustment is an increase in the rate of progression and measure for the relatively longer hauls, the reductions in which had been particularly objected to by the railroads. Some changes are also proposed to increase to some extent the interterritorial rates, and several detail changes are prescribed in the scales for application within the western trunk line territory. The changes are to be effective on March 20.

Report by Commissioner McManamy

The report, by Commissioner McManamy, was made after further hearings on petitions filed by the railroads declaring that the 1931 readjustment failed to grant them the revenues to which they believed themselves entitled upon the original record, or even the relief which they thought the commission obviously contemplated granting, and that since the original record closed in May, 1928, their revenue needs had become even more acute.

Commissioner Mahaffie dissented, saying that while some improvement will result from the findings made, "in the main, it is another piece of patchwork on an obsolete structure." Commissioners Lee, Aitchison, Porter, Farrell, and Splawn wrote separate concurring opinions objecting to some features of the findings. The majority report says the changes made should alleviate to a considerable degree the existing unsatisfactory situation regarding the interterritorial rates but that it is hardly likely that it will cure it in every detail. Following are some extracts from the majority conclusions and Commissioner Mahaffie's opinion:

Extracts from Majority Report

This further record fully sustains respondents' claim of need for increases in their net revenues from all traffic. It is obvious that the financial condition of the western trunk-line carriers has not improved since the original decision, but that on the contrary their operations have failed by ascending amounts to yield a fair return. It is equally obvious that the difference can not be made up alone from the class-rate and related traffic herein under consideration, which represents only a small proportion of respondents' total tonnage. However, within the bounds of reasonableness, and taking into account the lawful interests of the shipping public, this traffic should contribute as much as possible toward that end.

The results of the 1932 traffic test as portrayed by respondents can not be accepted at their full face value, but they are convincing that the increases yielded by the readjustment under review are not as great as anticipated. A variety of causes has brought this about, chief among them being the depression in business and inroads of trucks with the consequent losses in railroad tonnage, reduced rates compelled by truck competition, and intrastate rate levels lower than interstate.

Another indication of the traffic test is that, due to the heavy reductions prescribed in the long-haul interterritorial rates, a greater reduction than probably necessary or warranted has occurred in the revenues on traffic between western trunk-line

territory and official territory east of Illinois, which represents approximately 45 percent of the total revenues covered. And it would appear that a partial reason for the comparatively small increases on traffic moving intraterritorially within western trunk-line territory, and between the latter and Illinois territory, was the drastic reductions in the long-haul rates, more especially to and from zone III and subzone III, although the test figures are not so segregated that this may be stated positively.

In developing the rate scales and bases herein prescribed an effort was made to produce revenue increases as great as believed possible on interstate traffic, giving thorough consideration to all pertinent factors. As will be shown later, those factors include truck operations, what the traffic will bear, and the proper relation of one rate zone or territory with another.

No comment is made on the intrastate rate situations because interstate rates only are under review in this reopening.

Respondents propose a sharp departure from the customary plan for constructing rate scales followed in the original report. They seek no change in the scales for 500 miles and less, but beyond they propose drastic increases in the rate of progression per 100 miles.

In justification respondents' traffic officials testified to the effect that the present scales below 500 miles afford reasonable rates, although they must often publish lower rates in order to compete with motor trucks; however, for hauls longer than 500 miles truck competition is not so prevalent, so that they can safely increase those rates and still hold the traffic to the rails. They vigorously contend that we may not give any consideration to truck competition in deciding upon reasonable rail rates. They claim that this is a matter within the domain of respondents' managerial discretion after we have exercised our function of prescribing maximum reasonable rates for rail transportation.

Respondents' position is untenable. Truck operations merely present another element to be given consideration and due weight in arriving at appropriate distance scales. While this element enters in some degree the deliberations upon scale construction, its greatest force is, of course, upon the measure of the scales.

We think that the scale construction proposed by respondents is unsound. Undoubtedly the abnormal "boost" they propose in their scales from 500 to 800 miles and somewhat less marked beyond, would cause revenue losses because of further diversion to the trucks; and rate relations betwen points above and below 500 miles would be seriously disrupted.

We believe that we should adhere to the customary plan of rate-scale construction, altered only to fit the conditions developed on this record so far as practicable. Foremost among those conditions are the susceptibility of class-rate traffic to movement by truck, and the enormous diversion to trucks which has already taken place. This suggests scale construction relatively low for the shorter distances, and relatively high for the longer distances. However, we are impressed by respondents' argument that if the rates for the shorter distances are reduced in recognition of the effects of truck operations, which seem to concern chiefly the less-carload and the higher-grade carload traffic, they will suffer unnecessary reductions in revenues on the lower-grade, heavy-loading, carload traffic which is likely to continue moving by rail. The latter, because of its nature but particularly because the rates thereon represent small percentages of the class 1 rates, is not attractive to truck operators. As indicated, respondents have reduced very widely their short-haul rates on traffic of the character first above described in order to compete with trucks. These considerations lead to the conclusion that the scales for the shorter distances should be modified only to the extent necessary to reflect the changes herein required in the present relations to other scales of the rate levels for zones I, II, and IV. We think that the record justifies some increases in the scales for the longer distances, but not to the figures proposed by respondents.

Authorization in their entirety of the rate scales proposed by respondents, which we believe to be in excess of what the traffic will bear, would be a futile gesture, would produce no increased revenues, and would shift from us to the carriers the duty and responsibility of determining reasonable rates.

Commissioner Mahaffie's Dissenting Opinion

Commissioner Mahaffie, dissenting, said the Federal Co-ordinator of Transportation recently has made a nation-wide study, and has published an elaborate report on the handling of merchandise traffic. He has proposed a radical revision of the present methods. Whether or not his suggested solution of the problem is the best that can be devised his report makes it abundantly clear that the present handling of this traffic is inefficient and wasteful in the highest degree, and that the whole of the present system of rates and classifications should be changed radically.

Perhaps when railroads monopolized land transport there was justification for the elaborate classification refinements that grew up. Possibly the rate structure then devised best fitted the requirements of the time. With trucks and forwarding companies handling so large a proportion of the business at present, such justification, if it once existed, can no longer be found. The rate structure which once may have been just and wise now invites the trucks to absorb the business in which there is profit for them, and at the same time holds down earnings on what is left to the rails. The railroads have the facilities, if properly utilized, to handle a large proportion of the merchandise traffic of the country. The portion they actually handle is rapidly decreasing. Under these conditions it might have been expected that in a proceeding such as this the carriers would have had something better to suggest than a reversion to the combination basis that was formerly in vogue. It seems obvious that such a reversion would only speed up the process of ridding them of this business.

Not only the carriers but this commission ought to take note of what has happened in connection with this traffic in recent years. Certainly this record is replete with such facts. Both ought to be willing to abandon theories that no longer even approximately fit the facts.

In this proceeding, however, the majority merely undertake to revise certain phases of the adjustment originally prescribed. Some improvement will result from the findings here made. In the main, however, it is another piece of patchwork on an obsolete structure. Instead of simplifying the structure or reshaping it to fit present conditions, the majority continue the twenty-three recognized classes and, in effect, add greatly thereto by prescribing for use in connection with them varying classifications and exceptions.

Some particular rates are increased. The increases are limited, in the main, to that part of the structure which will continue to be governed by the western classification. Indeterminate reduction of carrier revenue will result from the so-called destination classification plan. Such a formula will make applicable in one direction rates resulting from the lowest effective classification ratings or exceptions, whereas in the opposite direction the same commodity moving over the same rails may have much higher rates because of the governing destination rating. There may be instances where transportation conditions justify such differences in rates, but no such transportation conditions are shown as the basis for the differences here.

In my opinion, the adjustment prescribed, requiring as it does, different classifications subject to varying exceptions, will cause much dissatisfaction among the parties affected by it, and will be productive of much litigation and piecemeal revision.

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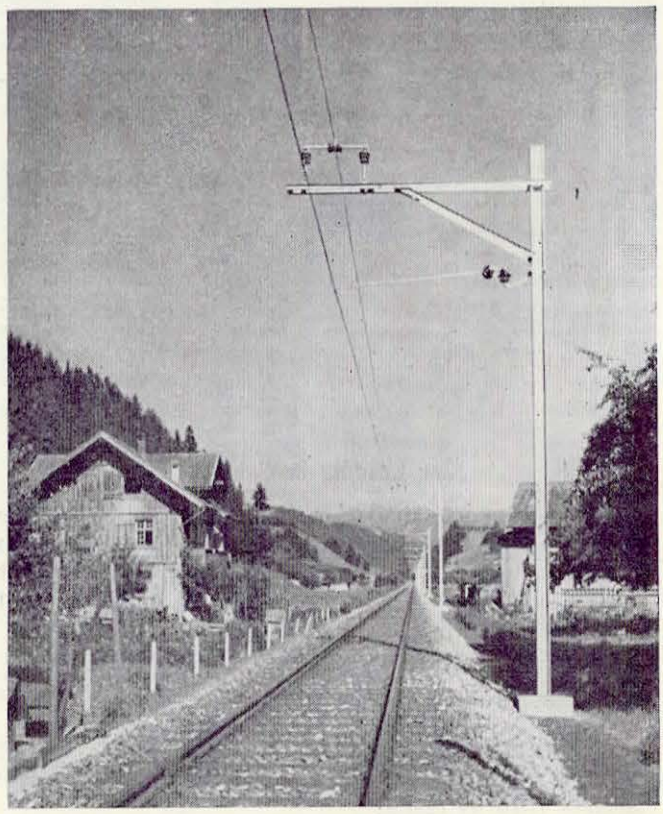

A Section of Swiss Federal Railways' Berne-Langnau-Lucerne Line Which Has Recently Been Electrified

The Freight Car of the Future*

Load-carrying ratio of 5 to 1 feasible—Limitations of the all-purpose car—Containers hold promise

By V. R. Hawthorne

Secretary, Association of American Railroads, Mechanical Division

MANY suggestions are being made that the future freight car should be radically different from the present freight car. Among the suggestions advanced are the following: (1) The weight should be reduced to provide a ratio of carrying capacity to dead weight of 5 to 1. (2) Cars should be smaller so as to be better adapted to present-day sales unit requirements. (3) Cars should be constructed so that they may be loaded and unloaded from any of their sides, roofs, ends, and bottoms. (4) Cars should be constructed so that they can handle any commodity in any weather or temperature, in other words, an all-purpose car. (5) Cars should be so designed as to be quickly and cheaply transferable from rail to highway chassis.

These are some of the suggestions now being considered by the railroads with respect to freight cars. The question of weight is probably the simplest part of the problem. Several strong light-weight materials are now or soon will be available to the designer of freight cars so that a load-carrying ratio of 5 to 1 is practically within reach so far as conventional types of cars are concerned. The manufacturers of couplers, truck side frames, bolsters, etc., are also working on the designs of these parts using high-tensile materials with a view of reducing their weight at least 25 per cent. Studies are also being made to determine the proper economic evaluation of weight reduction in freight cars; in other words what can you afford to pay for reduction in dead weight of cars. Another possibility in connection with reducing the weight of cars is the use of corrosion resisting materials. Another possibility is the extensive use of welding instead of riveting.

Limitations of the Small Car and Other Special Designs

In connection with the suggestion for smaller cars it is pointed out that such units would probably cost more and be more expensive to operate on a tonnage capacity basis than the conventional type and capacity car since, except in special cases, they must be handled in regular freight train service and must, therefore, be built with sufficient strength to withstand that kind of handling. As a result it will be difficult to build an effective and safe car without having the ratio of dead weight to load carrying capacity very high. There is also the thought that perhaps much of the present day small lot shipments that would make a small car pay may be of a temporary character, due to present day business conditions. As the service life of a freight car is twenty years or more, it is not practicable to be changing the size of freight cars unless there is more than a temporary demand, otherwise the required investment in such special equipment would not be warranted.

Such bulk commodities as coal, iron ores, grains, lumber, live stock, products of steel mills, etc., will continue to require large car units, as the net cost per ton mile for hauling and handling is less with the larger size cars. It would seem that the answer to the small unit shipments might well be in the further development and use of the shipping container and container cars.

Now let's consider the matter of being able to load and unload a freight car from any of its sides; i. e., roof, ends, sides, and bottom. This envisions an all-purpose car for the handling of any commodity, especially when considered in connection with the other suggestion being advanced, that cars should be so designed that they can handle any commodity in any weather or temperature.

One of the first objections that would be raised with respect to such a car is the fact that many ladings so contaminate a car that it is no longer acceptable for the transportation of high class merchandise and food stuffs. Another big problem would be the increased weight due to insulation and the difficulty of properly insulating and keeping so many openings weather and lading tight.

The Question of Car Roofs and Doors

A number of roofed hopper cars are in service handling bulk cement and phosphate. These cars have small loading hatches in the roof and bottom unloading. Shippers and consignees using these cars have built suitable facilities at their plants for loading and unloading these cars. These facilities were provided at considerable expense and are only suitable for commodities of the character mentioned, and furthermore, these installations are only warranted with a large volume of business. The application of such a roof to a hopper car makes it unfit for use in dumping loads on dumping machines or taking the load out with clam shells. Furthermore, the great majority of commodities handled in hopper and gondola cars do not require protection with a roof, but in an all-purpose car, as frequently referred to, the roof would have to be maintained all the time for occasional use with special commodities.

Roof doors in a box car would be objectionable because the roof is an important part of the car structure and if it had large openings in it, or if it was removable in part or as a whole the car would require strengthening in other ways, which would increase the weight of the car. Small roof doors would be satisfactory for some kinds of lading but other commodities could not be loaded through the roof unless practically the entire roof was opened up. The smaller the roof doors, the less their usefulness from the standpoint of the shipper and the consignee. Roof doors would also have to be kept tight against water, cinders and dust at all times and the larger or more numerous the doors the more difficult this would be.

Another one of the sides to be considered is the end. A considerable number of box cars have been built having one end door, but the use for such doors is limited. The end door on some cars has been closed up with solid

* Abstract of a paper entitled "The Freight Car" which was presented before the November meeting of the Western Railway Club. Before discussing the future requirements of freight equipment, Mr. Hawthorne called attention to the vital part which car departments and freight cars play in the railway picture. He explained briefly how freight car details were standardized and interchange practices adopted by the former Master Car Builders' Association and how this important work is now being carried on by the Car Construction Committee, Arbitration Committee, and the Mechanical Inspection Department of the Association of American Railroads, Mechanical Division.

end as it was found that the supply of such cars exceeded the demand and there was the ever present danger of the lading shifting and pushing out the end door and falling on the track and causing an accident. End doors are also expensive and difficult to maintain. When cars are loaded or unloaded through end doors stub end tracks are also required.

Hoppers or drop doors are also very objectionable and are difficult to maintain against leakage of lading. Many gondola cars originally built with drop doors have had such openings permanently closed to provide a safer and more suitable car for the service in which most used.

A number of box cars were built some years ago with hopper bottoms. It is my understanding that these cars were not very satisfactory and I do not believe any additional cars of this type have been built.

When not needed any door opening is objectionable. For many ladings it is necessary to provide door protection or to board over the doors or door openings.

All-Purpose Car Not Suited to Any One Service

The car men will probably agree that it would be very desirable to have only one type of car to maintain and theoretically such a car would only accumulate empty mileage due to unbalanced traffic. As a practical matter, however, it seems necessary to have different types of cars, such as box, refrigerator, stock, hopper, mill type gondola, etc., to properly meet the requirements of the shippers and the traffic offered to the railroads. Special types of cars, however, should be held to a minimum and should only be provided where absolutely necessary and where there is sufficient volume of traffic to justify their use and then only in sufficient quantity to adequately take care of such traffic.

To incorporate all of the features which have been found desirable in different types of cars into one type of all purpose car would probably result in a car that would not be satisfactory for any one kind of service, and a car whose initial cost, cost of maintenance and operation and weight would be altogether too high.

With respect to freight cars designed for service both on rails and on the highway I would direct your attention to the following considerations: (1) Any unit which operates on rails which are also used for conventional railway equipment must, in the interests of safety, be governed by train orders, and irrespective of the tonnage handled, must occupy the same amount of track as a conventional train. (2) While operating on the rails all laws relative to crews and wages must be observed greatly increasing the cost per ton mile or less restrictive laws must be sought and enacted. (3) The laws of the various states which govern the limits of size and weight of units which may be transported over the highways would limit such vehicles to relatively inefficient load carrying units as compared with light weight high capacity conventional type railroad freight cars.

Freight Containers May Offer Practicable Solution

Earlier in this paper I ventured the suggestion that freight containers and container cars would be the best solution of the small sales unit requirements. In my humble opinion this method if it could be worked out practicably would also fit nicely into a complete scheme of transportation service including pick-up and delivery of freight. It would seem that standard freight containers could be designed in a limited number of sizes and capacities to take care of these small lot shipments and that such a method of handling from shipper to customer would prove popular. The standards of sizes, capacities and types of such containers; the method of securement to cars; method of handling when off cars, scheme of ownership and distribution, all present a number of complex problems which I believe are capable of successful solution. To be successful such a scheme should be universal and not applied to the lines of one or two railroads; also the containers themselves and the rules governing their use and interchange should be uniform the same as the rules governing the use and interchange of freight cars are today. It is my belief also that by such an arrangement heavier car loading would be possible in the case of L.C.L. freight.

The foregoing constitutes some of the major problems now confronting the car men of American Railroads and my hope is that I have given you some thoughts for profitable discussion.

Organization Plan Adopted for Purchase and Supply Officers

WASHINGTON, D. C.

ADOPTION of a plan of organization providing means for promoting and maintaining co-operation among the railroads for the purpose of eliminating waste and improving practices in their supply departments and national and regional organizations to deal with many important problems involved in the procurement of railway materials was announced by Co-ordinator Eastman on November 15. The plan has been approved by the Co-ordinator's Section of Purchases, by Division VI of the American Railway Association and by the association itself.

During the month of July, 1933, Mr. Eastman said, the Section of Purchases began a detailed study of the organization and methods of the purchasing and stores departments of the railroads, to develop means for promoting economy in purchasing, handling and distributing railroad material. Officers and members of Division VI, Purchases and Stores, American Railway Association, co-operated in this work from the beginning, individually and through their organized committees. With the co-operation of Division VI, informal meetings of purchasing officers were arranged to be held in each of the three co-ordinating regions, for general discussion of purchasing problems. Discussions at these meetings covered purchasing problems only, and did not deal with subjects regularly handled by organized committees of Division VI.

In April, 1934, the results of studies made by the Section of Purchases and by railroad purchasing officers indicated the need for closer co-operation among the railroads in connection with purchasing, and for interchange of information regarding prices, terms, routing of materials, and adherence to A.R.A. standards. It was therefore decided that during an indeterminate trial period, actual purchase orders should be reviewed by a committee of Division VI and by the Section of Purchases. In order to determine the value of such review, six large railroad systems having headquarters in Chicago were requested to furnish copies of purchase orders issued by them, beginning May 1. Orders for certain classes of materials, mostly bought on contract, were not included.

A Reviewing Board Committee of purchasing officers was appointed by Division VI. Purchase orders issued by the six railroads during the months of May, June, and July, 1934, were analyzed and tabulated to show classification of material, prices or discounts, routing, and

adherence to A.R.A. standards. After thorough study and discussion by the Reviewing Board Committee at monthly meetings, purchase orders were turned over to the Section of Purchases for further study, together with comments and suggestions from the committee. "The results of these studies indicated to us, as well as to the committee," Mr. Eastman said, "that differences in prices of the great majority of items were insignificant. The only substantial differences occurred in the case of certain low-priced items bought in small quantities. In almost all items the effect of N.R.A. codes in bringing about uniformity of price was quite obvious. The codes had a similar effect on routing. It was evident that no important savings could be expected through attempting to eliminate minor differences in price on small items, and that items representing more than 90 per cent of dollar volume were substantially uniform in price at the point of use, after making necessary adjustments for off-line and on-line transportation costs. In some cases, differences of 2 per cent or 3 per cent in prices of important items were caused by the zoning system used under certain codes, whereby arbitrary basing points were established.

"A very considerable amount of work was involved on the part of the six railroads in the preparation of copies of purchase orders to show the information requested. After three months' trial, the Reviewing Board Committee made a report to us which stated that in the opinion of the committee members and of the purchasing officers of the roads, the results to be obtained from this review would be negligible when compared with the cost of doing the work. Our own study of the purchase orders led us to the same conclusion. At a meeting of the Reviewing Board Committee held in Chicago early in August, the matter was fully discussed by all concerned, including officers of Division VI and representatives of this Section, and it was agreed that the review plan as originally conceived could not be expected to produce results commensurate with its cost. It was the consensus of opinion that the real opportunity for saving lay in those items bought largely under contract, including fuel, lumber, ties, and certain other commodities representing large money value, and that such contracts, and purchasing and routing practices in connection with such commodities, could be reviewed most effectively through a 'random check' method, the necessary information to be called for by us when in our judgment it seemed desirable to investigate purchases of a specific commodity during a particular period.

"The informal meetings of purchasing officers in the Eastern, Southern, and Western Regions had been held at regular and frequent intervals during the twelve months prior to August, 1934, and had brought substantial benefits to the roads represented, through interchange of information on problems of common interest. While it was not possible to get actual figures, the chairman and members of the three groups were of the opinion that the discussions at the meetings had resulted in important direct and indirect savings in the procurement of many items purchased.

"The results of these meetings were brought out at the meeting of the Reviewing Board Committee in August, 1934, and it was agreed that the most feasible plan for checking purchases, routing, etc., would be to extend the group meeting idea to cover all railroads. A sub-committee was appointed to work out details with the officers of Division VI, and in September another meeting was held to consider the plan submitted by the sub-committee. After careful consideration of all phases of the subject, the plan as proposed by the sub-committee was approved by the Reviewing Board Committee, by officers of Division VI, and by the Section of Purchases. It was then submitted to the General Committee of Division VI, approved by that committee, and submitted to the President of the American Railway Association. Official approval of the Association was received shortly thereafter, and the 'Regional Group Plan' was set up under the auspices of Division VI and the Section of Purchases."

The plan provides for the establishment of six regions covering all railroads in the United States. A chairman was appointed by Division VI for each regional group, as follows:

(1) Eastern Group, A. W. Munster, Chairman, Headquarters, New York, N. Y.

(2) Southern Group, J. K. Bennett, Chairman, Headquarters, Atlanta, Ga.

(3) Western Group, D. C. Curtis, Chairman, Headquarters, Chicago, Illinois.

(4) Northwestern Group, C. C. Kyle, Chairman, Headquarters, St. Paul, Minn.

(5) Southwestern Group, J. H. Lauderdale, Chairman, Headquarters, St. Louis, Missouri.

(6) Far Western Group, U. K. Hall, Chairman, Headquarters, Denver, Colorado.

All the members of the Regional Review Board Committee were requested to function as a national Purchasing Advisory Committee. A meeting of this committee, with the six group chairmen, the chairman and secretary of Division VI, and the director of the Section of Purchases, was held in Chicago during September, 1934, and the plan of operation worked out. This plan provides that meetings shall be held regularly in each region at intervals of not less than sixty days, the chairman having authority to call meetings at more frequent intervals in his discretion. Each chairman is to prepare a docket for each meeting, including such subjects as he deems important, or as have been suggested by members of his group. Notices of the meeting are to be sent to the chief purchasing officer of each Class I, II and III railroad in his region, provided such railroads are members of the Association of American Railroads. It was left to the discretion of each chairman to secure the attendance of representatives of all Class I roads in his region, but it was agreed that it would be unwise at present to make any attempt to require attendance.

The Secretary of Division VI will receive from the group chairmen copies of their dockets in advance of meetings, together with a notification of the time and place of the meeting. He will then send notices of meetings, with copies of the docket, to each member of the group or groups concerned. Discussions in the meetings are expected to be largely informal, and to cover not only subjects on the docket, but any other subjects which appear important to any member of the group, whether present at the meeting or not. It was particularly urged upon the chairmen that discussions on questions of price be entirely free and open. It was agreed that a brief report of each meeting be made, showing the subjects discussed, and that if definite action were taken by vote of those present, the result of that action be duly stated in the report. Reports of group meetings will be prepared by the chairman of each group, and transmitted to the Secretary of Division VI. He will then send copies of these reports to the chairmen of all groups, to the members of the Purchasing Advisory Committee, to the officers of Division VI, and to the Co-ordinator.

It was further agreed that any information desired by the Co-ordinator's office be requested through the secretary of Division VI, who will transmit the request to the group or groups concerned. Such requests would in most

cases call for information regarding purchases of specific commodities during a stated period, and might require preparation of detailed information by roads in one or more regions, including copies of contracts and orders, routing instructions, and such other information as the Co-ordinator might require. It was understood that the Co-ordinator might also request that a special meeting of one or more groups be held at any time to consider some specific matter, and that the chairman of the group or groups should call such meeting at the time requested by the Co-ordinator or within a definite period stated by him.

The Purchasing Advisory Committee is not expected to hold regular meetings at stated intervals, but shall be subject to call of its chairman. It is understood that this committee will meet when advisable for the purpose of considering questions of importance to all the railroads, and will in such cases request the chairmen of all groups to be present. The committee will also maintain contact with the Co-ordinator's office at all times for the exchange of suggestions and information and may be called together by the Co-ordinator at any time for discussion of matters which seem necessary to put up to the regional groups.

Meetings of all groups were held during the month of October, as follows:

Northwestern Group, October 9, St. Paul,
Southwestern Group, October 16, St. Louis,
Eastern Group, October 18, New York,
Southern Group, October 22, Atlanta,
Western Group, October 24, Chicago,
Far Western Group, October 26, Denver.

The director of the Section of Purchases attended each meeting, also the secretary of Division VI. At each meeting there were one or more representatives of other regional groups. Among the subjects brought up for discussion was that of possible economies to be gained through joint purchasing of certain commodities, and through concerted action in respect to estimating requirements in advance, to the end that costs and prices of certain items might be lowered to the advantage of both vendor and purchaser. At some of the meetings there were extended discussions of methods, practices, and contract provisions in connection with the purchase of items wholly or partly covered by patents. The effect of N.R.A. codes was an important subject at each meeting, and in some cases resolutions were passed whereby specific information and recommendations were given to the code committee of the railroads.

During the latter part of 1933 and in 1934, a number of informal meetings of stores officers were held in the eastern region for the purpose of comparing methods and costs in the handling and distribution of stores and supplies. It was reported by those who attended these meetings that the results had been extremely beneficial to stores officers, and had resulted in the adoption by certain roads of practices which had proved economical in the stores departments of other roads. It was agreed by the members of the Purchasing Advisory Committee and the Regional Group chairmen that regular meetings of stores officers in all regions could be expected to produce similar results, and that such meetings should be organized immediately.

The vice-chairman of Division VI, who had been instrumental in conducting stores meetings in the Eastern Region, was requested to organize stores groups in the six regions now set up, with a chairman for each group reporting to the chairman of the purchasing group in that region, and to include all railroads in the regional group. The six chairmen have since been appointed, and four meetings of stores officers have been held, some of them at the same time and place as the meetings of the purchasing officers. In addition to joint meetings, two separate meetings of stores officers have been held. The procedure in the meetings of stores officers is similar to that set up for meetings of purchasing officers, all notices being sent out by the secretary of Division VI, all reports sent by the chairmen to the secretary and transmitted by him to the group chairmen. These meetings will be tied in very closely with meetings of purchasing officers. In all but the Eastern Region, it is expected that stores officers will be invited to the meetings of the purchasing officers, and vice versa. This may also be done in the Eastern Region occasionally, but not generally, on account of the large number of individuals involved. "It is too early to predict definite results from these meetings," the statement said, "but the consensus of opinion among both stores and purchasing officers, which is concurred in by the Purchasing Advisory Board, is that they will result in substantial direct and indirect savings through the exchange of information regarding improved methods and practices which are now far from uniform, and which show considerable differences in cost of similar operations.

"In general, the major objective of these meetings is to bring out the best methods and practices used by any railroad, and to make them not only available to other roads, but to promote their use on all roads which might profit from them. The regional plan of organization makes it possible for representatives of the roads to attend meetings without incurring undue expense of money or time, and the Purchasing Advisory Committee, together with the chairmen of the regional groups, will provide the machinery for dealing with purchasing and stores problems of national importance. The provision whereby all dockets, notices of meetings, requests for information, and reports of meetings, clear through the Secretary of Division VI, assures full interchange of information among all concerned, with a minimum of delay. The set-up also provides the necessary machinery to maintain contact with the Co-ordinator's office, and to furnish the Co-ordinator promptly any information which he may require.

"The officers and members of the Purchases and Stores Division deserve great credit for their whole-hearted cooperation and their constructive and successful work in developing this plan."

* * *

A Wabash Freight Train, Eastbound Near Seventy-fifth Street, Chicago

W. R. Cole, President of L. & N., Dies Suddenly

Death came unexpectedly after brief illness while he was alone on private car

WHITEFOORD R. COLE, president of the Louisville & Nashville, died suddenly on November 17, while on his private car attached to the railroad's Pan-American enroute from Nashville, Tenn., to his home at Louisville, Ky. Mr. Cole had complained of feeling ill Friday night and on Saturday afternoon his condition became rapidly worse, death occurring at 4 P. M. Except for his Negro porter, Mr. Cole was alone when death came.

Mr. Cole had been president of the Louisville & Nashville since 1926, and had safely piloted his company through a period of momentous changes in the railroad industry and well past the threshold of a new era. In the face of declining business and intensified competition on the part of subsidized agencies, the L. & N., under his direction, initiated important improvements and innovations in its service in an attempt to retain its business, most of which have proved highly effective in reducing traffic losses.

W. R. Cole

Being the son of a railroad man, Mr. Cole early acquired a liking for the business and manifested exceptional abilities from the beginning. His father was Col. Edmund W. Cole, who, during the war between the states, was presidem of the Nashville & Chattanooga (now the Nashville, Chattanooga & St. Louis), a subsidiary of the L. & N., of which his son later became chairman of the board and then president. The elder Cole was known as an exceptionally able business man, and the son inherited many of the qualities of his father.

Mr. Cole came to the L. & N. in 1926 with a record of exceptional performance as head of the N. C. & St. L. Always an ably and soundly managed road, the Louisville & Nashville continued to prosper under his capable management. Coming to the property while it was in the midst of a campaign of intensive improvements, he continued the program to a successful conclusion. Hundreds of additional miles of line were placed under the protection of block signals, numerous bridges were replaced with structures capable of carrying the heavier power that was being placed in service, grade separation projects were carried out in many cities, yards and shop facilities were enlarged and modernized, and numerous miscellaneous facilities were constructed.

During the years of the depression the L. & N., under the direction of Mr. Cole, met the challenge of declining traffic and revenues with courage and progressive action. The problem of competition on the highways was attacked by the inauguration, on March 15, 1933, of pick-up and delivery service at numerous points on its lines, which was instrumental in salvaging a gratifying amount of business for the railroad. Mr. Cole was among the first to recognize the possibilities of lower passenger fares as a means of increasing railway business and, as a consequence, his railroad assumed the leadership in reducing passenger fares in the Southeast. A coach rate of 2 cents a mile and a sleeping car rate of 3 cents, with no surcharge, were inaugurated on April 1, 1933. The resulting increase in the volume of passenger business carried proved the wisdom of this move, passenger revenues showing an increase over those of the previous year for the first time in September, 1933. The coach rate was subsequently reduced to 1½ cents a mile.

Mr. Cole was known for his democratic attitude in his relation with business associates and employees, and was a public speaker of considerable ability. He was a persistent student of all the broader problems of the railroad business, especially those growing out of the relations of the railways with their employees, with the government, and with the public.

Whitefoord R. Cole was born on January 14, 1874, at Nashville, Tenn., and was educated at Vanderbilt University. He was elected a director of the Nashville, Chattanooga & St. Louis in 1900, and was elected chairman of the board of directors in April, 1917. In October, 1918, he was elevated to the presidency, which position he held until his election as president of the Louisville & Nashville in 1926.

At various other times throughout his business career, Mr. Cole had been secretary and treasurer of the Napier Iron Works, vice-president and general manager of the Sheffield Coal, Iron & Steel Co., and president of the Nashville Gas Company. He had been a director of banks and public utility companies as well as of various railroads, mostly subsidiary lines of the Louisville & Nashville.

Hearings on Ex Parte 115

HEARINGS before the Interstate Commerce Commission upon the carriers' application for increased freight rates, Ex Parte 115, opened at Chicago on November 15. Because of the large number of witnesses wishing to testify, it was decided that this session would continue for five days. Because of limited time before hearings are resumed in Washington on November 26, Commissioner Clyde B. Aitchison requested that witnesses expedite their testimony and limit it to pertinent facts. Besides the testimony heard by the commissioner, witnesses also appeared at two other sessions before Examiners Myron Witters and James P. McGrath.

As at previous hearings, the poor condition of industries, the magnifying of this condition with increased rates and the spread of motor truck utilization by shippers occupied much of the testimony. During the discussion of the probable loss of traffic to motor trucks as a result of increased freight rates, Commissioner Aitchison inquired as to whether truck operators would not increase their rates if rail rates were increased and whether the shippers would revert to the trucks under such a circumstance. Those testifying included representatives of state railroad commissions, chambers of commerce, agricultural interests, manufacturing interests and others.

The South Omaha Terminal Railway Company filed an application for authority to increase its switching charges on line haul shipments. This request goes beyond the proposal of the carriers which provides that switching charges be increased 10 per cent, subject to a minimum increase of $0.25 per 100 lb. when published in cents per 100 lb. or per ton, or $1 per car when published per car, except that no increase will be applied to switching charges which are wholly absorbed by rail or water carriers. Under the carriers' proposal all storage charges for storage, handling, loading or unloading (except on export, import, coastwise or intercoastal traffic at Atlantic, gulf and Pacific ports) reconsigning, diversion, fabrication or other transit and other assessorial services (except transit of grain and grain products and stopping for fattening, grazing and feeding of livestock in transit) are to be increased 25 per cent.

The exhibit of the South Omaha Terminal Railway Company showed that over 80 per cent of its operating revenues are secured from switching. In 1933, its operating revenues amounted to $448,753, of which $374,492 was switching revenues, account 110; $12,360 was from demurrage, account 137; and $61,900 miscellaneous revenue from loading and unloading livestock and weighing cars, account 143. This was a decrease from the total revenues in 1927 amounting to $724,508 consisting of $586,309 switching, $19,064 demurrage, $1,476 rents of buildings and other property, account 142, and $117,658 miscellaneous, account 143. In 1933, this company had a deficit of $51,539 which increased to a deficit of $74,016 after increased expenses because of the wage adjustments effective April 1, 1935, and applied to the payroll charged to operating expenses for 1933, and the increased expenses because of the pension fund applied to payrolls for 1933 based on 4 per cent of the adjusted payrolls. During the 10 months ending October 31, 1934, the net earnings amounted to $20,293, but after the drought relief adjustment amounting to $36,510, there was a deficit of $16,216. This deficit was increased to $29,044 due to the wage adjustments and to a deficit of $33,121 due to the 4 per cent deduction for the pension fund.

A.F. Cleveland, vice-president of the Association of American Railroads, was cross-examined by the grain interests. Mr. Cleveland testified at the Washington hearing on October 1 that the proposed increases will not be higher than the traffic will reasonably bear.

Newsprint interests contended that their market was jeopardized by foreign competition which, because of a lack of protective tariffs, is able to fix the price usually lower than American prices and that any increase in freight rates will mean a further loss to American manufacturers which are now selling below cost. W. W. Race, secretary and sales manager of the Cornell Manufacturing Company, Cornell, Wis., said that the cost of inbound materials used in the manufacture of pulp board would be increased more than $1 per ton. Because of cheaper forms of transportation enjoyed by competitors in the East and West, his company, which has always used railways, made a test of truck transportation. Products of the company were trucked to Chicago and on the return trip these trucks carried waste paper used in the manufacture of pulp board, thus permitting a two-way haul. Ninety per cent of this company's inbound shipments comes by rail, while 98 per cent of its outbound shipments moves by rail.

S. W. W. Carr, traffic manager and secretary of the Commerce Association, Aberdeen, S. D., complained against the carriers' proposal to increase rates when South Dakota has been supporting the railroads by legislating against trucks. He contended that in many instances in that state trucks offer better service.

Freight Charges Large Percentage of Marketing

According to Alva H. Benton, agricultural economist of the North Dakota Agricultural Experiment Station, Fargo, N. D., in 1927 freight constituted 52.51 per cent of the cost of marketing cattle on the South St. Paul market, 51.5 of the cost of marketing hogs, 46.3 per cent of the cost of marketing sheep when double-deck cars are used and 53.4 per cent when single-deck cars are used. He said that 6.39 per cent of the cattle, 14.39 per cent of the calves, 8.51 per cent of the hogs and 5.78 per cent of the sheep were trucked at the South St. Paul market in 1926, while in 1933, the amounts had increased to 47.91 per cent, 72.44 per cent, 59.33 per cent and 22.74 per cent, respectively. The number of trucks entering the market increased from 59,993 in 1926 to 158,134 in 1933.

Walter R. Scott, president of the National Industrial Traffic League, testified for that organization, opposing the proposal to institute a charge of $1 for the issuance of each order bill of lading. In testifying against the proposed increases in freight rates, he said that the tax on business resulting from the proposal to increase rates will amount to $3,000,000 on grain alone. He said that the use of the order bill of lading has become an integral part of American business and that it is essential to carry on much of the heavy traffic of the country. At the same time, he continued, it imposed nothing on the carriers beyond the proper delivery of goods entrusted to them, a duty that has been theirs since common carriers first became recognized under the common law. Never before in the entire history of transportation, he said, has any carrier taken the position that it was entitled to compensation for adequately performing that duty.

A "SHORTAGE AFTER PROVIDING FOR STATUTORY DEBITS," i. e., a deficit of £2,588,127, after interest and exchange charges, was reported by the New South Wales (Australia) Government Railways for the year ending June 30, 1934. This represents a reduction of £772,355 from the 1932-33 deficit of £3,360,482.

N. I. T. League Now Favors Regulation of Truck Rates and Services

Position in Ex Parte 115 and attitude toward Co-ordinator's studies also outlined at annual meeting

THE regulation of the rates and services of highway carriers was endorsed by the National Industrial Traffic League at its annual meeting in New York on November 14-15, the action being a reversal of the position taken heretofore by the league which had opposed the regulation of rates and services but favored regulation of safety and reliability. Besides advocating the regulation of highway carriers, the meeting discussed the Co-ordinator's studies of railroad freight and passenger business and established its position in Ex Parte 115, the carriers' application for increased freight rates.

Officers of the association were re-elected for the ensuing year, including: President Fred M. Renshaw, traffic commissioner of the Buffalo Chamber of Commerce, Buffalo, N. Y.; vice-president, W. R. Scott, transportation commissioner of the board of trade, Kansas City, Mo.; and treasurer, Roy W. Campbell, manager of the traffic department of the Butler Paper Corporation, Chicago. W. P. Libby, general traffic manager of the Plymouth Cordage Company, Plymouth, Mass., was elected chairman of the board of directors, and W. H. Day, manager of the transportation bureau of the Boston Chamber of Commerce, was elected chairman of the executive committee.

Coincident with the action favorable to highway regulation, the members by a vote of 64 to 41 withdrew from the National Highway Users Conference with which the league became associated last year. The withdrawal follows the publication of a circular by the conference entitled "Shall the Federal Government Crack Down on Highway Transportation," which convinced the members of the league that they could not be bound directly or indirectly by any action taken by the conference.

Regulation of Highway Transportation

While the Highway Transportation committee did not recommend the endorsement of any particular bill for enactment in the next Congress, it favored "reasonable and logical" regulation of highway transportation for hire both as to rates and services, and asserted that any further legislation should contain the following restrictive provisions:

(1) It would be uneconomical and against the public interest to require the public to pay to support that part of the transportation investments which cannot be justified from a sound economic standpoint, and inasmuch as it is not known who will be appointed from time to time to administer any law, the committee is of the opinion that in determining and prescribing any rate, fare or charge and practice, the regulatory authority shall be governed by the cost and other conditions pertaining to highway transportation irrespective of the cost, rates, fares, charges and practices of any other agency of transportation.

(2) Any declaration of policy with respect to the regulation of commerce by motor carriers should state that the policy is to develop and maintain economical and efficient highway transportation to insure that such transportation shall be fully protected in its natural advantages and not be placed at any undue advantage or any undue disadvantage to co-ordinate and improve the relations of all agencies of transportation and to co-operate with the several states under the duly authorized officers thereof in the administration and the enforcement of the provisions of such legislation.

(3) Any further federal regulation of motor highway transportation should be under a specially formed division of the Interstate Commerce Commission.

No Regulation of Corporations

(4) In any regulatory bill there should be no regulation of any corporations or persons operating their own vehicles not for hire in interstate commerce but common carriers should be regulated both with respect to maximum and minimum rates and contract carriers should be regulated only with respect to minimum rates which minimum rates should be based upon the cost of transportation.

(5) In any regulatory bill there should be a "grandfather clause" to cover bona fide common carriers and contract carriers already in operation.

(6) Rates should be filed at the time the law becomes effective and should become lawful rates until lawfully changed and such rates so filed should not be subject to suspension.

(7) There should be no attempt to make arbitrary definition of what constitutes common or contract carriers.

(8) Nor unless and to the extent that the regulatory authority shall from time to time find that such application is necessary to carry out the policy of regulation, shall the provisions apply to the transportation by motor vehicle of persons or property in interstate or foreign commerce only within a municipality and its residential and industrial environs or wholly between two contiguous municipalities or their environs or within a zone adjacent to and commercially a part of any such municipality or municipalities.

(9) A provision should be written in any bill requiring that either the initial or terminal carriers shall be held liable for loss and damage, the same as now required by rail lines.

(10) An operator engaging in any part of interstate commerce should be required to obtain a certificate or permit. There should be no proviso to require issuance of a certificate when no adequate service of a like kind—that is, of the same status—is available to meet all reasonable public demands and that one person should be allowed to hold both a certificate and a permit.

(11) The co-ordinator's provision to revoke a certificate or permit could be used to unduly destroy property rights; the committee believes that no regulatory authority should be given such power.

(12) That the suspension power in any law be limited to application filed on behalf of shippers or other motor truck transportation agencies with the burden of proof on the party who files the tariffs to justify the propriety of the rates named therein.

(13) Any regulatory bill should require all common and contract carriers to carry full public liability, property damage and cargo insurance.

The committee also favored reciprocity between states and the enactment of uniform state legislation governing the height, width and length, axle and wheel loads and speeds of motor freight carriers, along the general lines recommended by the American Association of State Highway Officers.

The committee took the position that taxation should only be for the purpose of compensating the government for the actual use of the highways by motor transport and should include such fair tax upon its property as is paid by other property. It also took the position that for-hire trucks should now file their rates actually charged with and enforced by the code authority and make them available to the public as is required of railroads. The code authority, according to the committee, should hold public

hearings before adopting any cost formula and provide the public with such proposed formula sufficiently in advance to permit of thorough study before any hearing is held.

Position of League in Ex Parte 115

The league went on record as not officially opposing or advocating the increases sought by the carriers in Ex Parte 115. However, it directed a special committee to appear before the Interstate Commerce Commission and oppose the fractional rule proposed by the carriers and advocate in lieu thereof the present rule for the disposition of fractions or the rule prescribed by the Interstate Commerce Commission in the reduced rate case of 1922. No definite position was taken with respect to proposed increases of switching charges except as to the minimum either per car or per cent per 100 lb. or per ton, contending that the proposal to increase switching charges subject to the minimum increase of $0.25 per 100 lb. when published in cents per 100 lb. or per ton, or $1 per car when published per car, would result in heavy increases. The special committee was directed to oppose these conditions, and to oppose the charge of $1 to be assessed for the issuance of every order bill of lading because it is a service type of change in tariff rates and because the members feel that it is out of place in the application of the railroads. The league will also oppose the carriers' proposal to increase the minimum charge of 50 cents per shipment to 55 cents and a minimum charge of $15 per car to $16.50.

The league also authorized and directed its special committee and counsel to oppose the proposed increase in reconsigning, diversion, weighing, lighterage, floatage, fabrication and other transit charges in full, or insofar as in their judgment it is advisable in the interest of the league in the case.

Co-ordinator's Merchandise Traffic Report

A report of a special subcommittee of the Rate Construction and Tariffs committee, favoring the merchandise traffic report prepared by the Federal Co-ordinator of Transportation, was referred back to the committee for further consideration. In its report the committee recommended that the league endorse the Co-ordinator's report with the proviso that the carriers be petitioned to make this report effective as soon as practicable, with any improvement or changes necessary to advance the original thought behind the proposal. The committee felt that classifications and tariffs would be greatly simplified, that considerable savings in freight charges would be accomplished, particularly in the case of high rated merchandise, that the report will provide for a co-ordination of transportation facilities permitting effective operation of each in its own sphere of utility in co-ordination with other existing forms of transportation, that it would effect a major reduction in the size of tariff files, that it would effect a decrease in overcharged claims, that it would permit ready determination of rates between given points, and that it would afford a practical, simple method of checking freight rates.

The Classification committee, in dealing with the Turney merchandise report, confined its consideration to the classification features of the proposal and the league approved this part of the report, with the proviso that this is not to be construed as approval of the principle of applying a minimum charge of 10 lb. per cubic foot of merchandise traffic. According to the league's Classification committee, "the Turney proposal is the ultimate in simplicity since it would practically eliminate classification problems on merchandise traffic. It is clearly sound in principle, viewed from the standpoint to which this committee is necessarily confined. It is, however, inextricably linked up with and dependent upon the acceptance of the plan as a whole. The new departure in rate making and the set-up of physical handling are the essence of the scheme as a whole and it will stand or fall on consideration of those phases. Approval of the plan as a whole by the league is necessary, dependent upon whether the rate-making and physical-handling features are deemed to be satisfactory in their practical working. Conditioned upon such a finding as to those essential features, it is the judgment of this committee that there is nothing objectionable in its classification features."

Dunnage Allowances

The Classification committee also reported on its efforts to secure the reinstatement of allowances for the actual weight of dunnage up to 500 lb. on shipment in box cars. The matter was taken up during the year with the Consolidated Classification committee, which declined to approve the proposal on the ground that a very serious reduction in the carriers' revenue would ensue and later took the matter up with the 13 regional advisory boards. At the meeting, the committee was directed to take the matter up with the Association of American Railroads.

Inland Waterway Regulation Opposed

The league voted to oppose "in its entirety and to the fullest extent of the league's power the adoption of S3172, the Eastman Waterway Regulation Bill, or any other bill that tends in any manner to increase the existing regulation against water transportation, and reaffirmed its position against the regulation of port-to-port rates." The Inland Waterways committee is of the opinion that there is now ample regulation of water transportation under the existing laws and that the adoption of the Eastman Bill not only will not stabilize water transportation as its sponsors seem to concede, but on the contrary will tend to demoralization and complete the annihilation of water transportation of any character. The committee further contended that the questionnaires upon which Co-ordinator Eastman and his staff arrived at their conclusions do not justify such a complete overthrow of existing law and the establishment in lieu thereof of such innovative and restrictive legislation as is contemplated in S3172.

The committee was opposed to the control of water rates by the Interstate Commerce Commission, calling attention to the fact that the commission in the making of rail rates has made extensive use of mileage scales. Practically every time the commission has had occasion to make joint rail and water rates, the committee continued, it has made those rates a percentage relationship to an all-rail rate, an arbitrary percentage relation, picked out of the air without any relative cost of transportation as between the two. Rail transportation in the minds of the committee, "is an expensive mode of transportation with conditions that are peculiar to it, whereas water transportation is a slower, less efficient and cheaper service. If given power over water rates, the commission will follow the practice heretofore indulged in of making water rates a fixed or percentage relationship to the all-rail rates. This can only mean a higher rate for water transportation than is necessary for a reasonable profit with the consequent penalization of the shipping and receiving public."

The league voted to oppose any proposal to create a permanent executive office in the federal government either as a cabinet position or otherwise with supervisory authority over the agencies of transportation engaged in

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Need for Order in Transportation*

Question of government ownership should be settled—Present loans much less than those of war time

By R. V. Fletcher

Vice-President and General Counsel, Association of American Railroads

EVERY student of the diverse and intricate problems which confront us as a nation must sense the necessity of providing for a method of interchanging our products and transporting our people in such a way as will best promote the general welfare.

Thoroughly understanding this, the better informed among our leaders of industry are giving anxious attention to transportation questions, just as they are giving consideration to problems that arise in the producing, merchandising and consuming departments of industry. They recognize that even though there be order in the processes of production and sale of goods, the business situation cannot be healthy unless there is likewise order in the transportation of goods from producer to consumer.

Reluctant as I am to provoke controversy, I cannot avoid mentioning some features of the problem which are highly controversial, and which have led to debate in an atmosphere so charged with self-interest as sometimes to obscure the truth. And again, the dispassionate consideration of the subject has been rendered difficult by the necessity of dealing with forces which have their origins in theories that transcend the limits of our special field, and extend into the whole structure of our political and economic systems.

Government Ownership a Fundamental Issue

At the outset, we must try to settle one fundamental question: Shall our agencies of transportation continue under private ownership and control, or is it, in the broader view, more conducive to our permanent happiness and prosperity that they should be owned and operated by the government?

It is clear to me that until this question is answered, and answered with some degree of finality, it is a waste of time and effort to explore the field. You will observe that I have not referred to government ownership of railroads alone, but to all types of transportation. For no one will seriously contend that the government will be satisfied to operate the railroads in competition with privately owned busses, trucks, boats, pipe lines and air lines. When the government enters a field, in the very nature of things it occupies it fully.

It cannot, permanently, be in the attitude of competing with its citizens—a form of rivalry in which the citizen cannot hope to survive and which the state is not disposed to tolerate. We may be concerned as well with the question as to whether, after all forms of transportation have been taken over, the government can stop at this point.

In reality, it may be interesting to speculate upon the reasons, if any exist, for government ownership and operation of transportation agencies under a governmental system, non-socialistic as to other forms of industrial activity. It is usual to mention as a reason for government activity in transportation matters the character of the business as one affected with the public interest. But it is worth noting that this doctrine had its origin centuries ago, at a time when certain lines of business enterprise were not only essential but monopolistic.

Often but one line of stage coaches operated between two centers of population. Frequently but one innkeeper held out accommodations in a particular village. In any event, the conception is purely legalistic, based on ancient precedents, now beginning to be questioned. It is only necessary to refer to the opinion of the Supreme Court in the recently decided milk case from New York, to catch a glimpse of what may happen to ordinary business, if once the government occupies the domain of transportation. It is easy to understand why, controlling so large a consuming industry, the government may find it desirable to produce its own fuel, its own lumber and ties, its own rails, bridge material and equipment. The independence of our entire commercial structure would thus be seriously threatened.

It is often said, however, that government ownership —at least of the railroads—is inevitable by reason of their financial weakness; their inability to meet their obligations; maintain their credit, and secure new capital absolutely essential to provide the facilities demanded by a changing order. It is said that to regain, and indeed to retain, their traffic, the money must be forthcoming to purchase light-weight, stream-lined trains, and in some instances to substitute electricity for steam as a motive power, to regain lost ground in the matter of maintenance, to provide heavier rail for high-speed passenger trains, and generally to rehabilitate the industry to cope with modern conditions of acute competition.

Reference is made to the huge sums borrowed from the government, particularly the Reconstruction Finance Corporation, the growing scarcity of collateral, and the distressing shock to business conditions—if we enter upon an era of wholesale railroad bankruptcies. All of these considerations when thus marshalled, do, indeed, portray the existence of a problem, the solution of which will tax to the utmost our energies, our ingenuity and our patriotism. At the same time, in my opinion, the problem is not insoluble if wise councils prevail, both within and without the industry.

Past Loans Repaid

In the first place, the sums due the Reconstruction Finance Corporation, while considerable, are not such at present as to arouse alarm. On November 1 of this year the railroads owed the Reconstruction Finance Corporation $353,170,000, all of it secured by the deposit of collateral found by the Interstate Commerce Commission to furnish adequate security. This sum represents 11.4 percent of the total revenues of the roads for 1933, a year of profound business depression. It will be recalled that at the end of federal control in 1920, the railroads were debtors to the government in the sum of

* Address before the Chambers of Commerce of Greater Kansas City, Kansas City, Mo., on November 22, 1934.

$1,116,000,000, all of which save $38,000,000 has been repaid with interest. If this balance is never paid, the government will be the gainer by the transaction in view of the difference between what the money cost the government and what it received from the railroads.

It is true that the roads have been furnished with an additional $200,000,000, likewise on good collateral, by the Public Works Administration. This money, however, was borrowed and spent primarily to improve the unemployment situation. And while all this will, of course, be repaid, it is not likely that the government will press for early repayment.

Excluding amounts owing to the United States, which sums the railroads may rationally hope will be renewed if necessary, and the principal of equipment trust obligations (ordinarily handled currently and without much difficulty), the roads in 1935 will be called upon to face maturities, including bonds and floating debt, amounting to $425,342,000, or a sum equal to 13.7 percent of their operating revenues for 1933.

Again this amount, while not to be treated lightly, does not assume dangerous proportions. It is a rational hope that the holders of these maturing securities will consent to their renewal at least to the extent of 50 percent. We can conclude, I think, that even a moderate revival in business will remove all excuse for government intervention.

Let us suppose, however, that business conditions do not improve. Upon this melancholy hypothesis, it is said that from some source the roads must secure $250,000,000 in new money in order to tide them over until the middle of the new year, not to mention sums needed for capital improvements. Assuming for our present purposes that this figure is not exaggerated, would it not be better for the government to continue its policy of lending to the roads rather than to buy them outright with the consequent strain upon public credit?

If this additional $250,000,000 is advanced with or without security, the total debt to the Reconstruction Finance Corporation would be $603,170,000. But upon any sort of fair and honest valuation, the railroads are easily worth $20,000,000,000, as the Interstate Commerce Commission's conservative estimate discloses.

How can it be rationally argued that the government would better expend twenty billion dollars to acquire the roads, rather than to lend them 3½ percent of that staggering sum?

If there were any reasonable hope that the roads would be operated by the government more efficiently and economically than under private ownership, a different conclusion might be reached. But no one, with knowledge, makes such an assertion. Experience in our own country during the World War, and observation of what is happening in the domain of our neighbor to the North indicate the contrary.

The Federal Co-ordinator, with ample opportunities for gathering data, and richly endowed with capacity to analyze them, does not suggest such a remedy. He points out that the government has neither the present financial resources, nor the credit to assume the capital cost of acquiring ownership of the railroads at anything like a fair price. He expresses some doubt as to whether the roads could be properly operated by a single central agency in view of their extent and the diversity of operating problems which that extent entails. He is not sure that any machinery can be set up for their control which will be free from the attack of partisan spoilsmen. He refers to the obvious absence of any well-defined or organized sentiment in the United States in favor of the plan.

Not to labor the point farther, we may safely conclude that if wisdom prevails in the councils of the nation, government ownership may be put aside as something to be embraced only if every other rational expedient fails.

The question remains as to what must and in common fairness, should be, done to insure the continued and successful operation of the railroads as essential agencies of our business structure, functioning in the public interest, and under private ownership and control. Upon this fundamental question, there is a great variety of opinion, some of which seems to me to be ill considered. It is frequently stated that the capital structures of our railroads are sadly in need of radical reorganization in such fashion as to reduce their fixed charges and thereby relieve the rate payers from the burden of debt.

No Reason for Repudiating Debts

It is not suggested, at least by honest and well-informed persons, that, speaking generally, the proceeds of railroad bonds have not been honestly and prudently invested in additions and improvements to railroad property. The valuation of the Interstate Commerce Commission to which we have referred, demonstrates this fact. And while a certain amount of railroad property is unquestionably obsolete, as indicated by abandonments, yet surely no one will contend that such obsolete property exceeds in value what has been contributed by the stockholders.

It is safe to say that every dollar derived from borrowings is now represented by property now in use and useful for the transportation needs of the country. Such being the state of affairs, what reason is there, particularly in the case of solvent railroads, for adopting a policy of repudiating debts? It cannot be said that the creditors of the roads are receiving an excessive rate of interest measured by modern standards. The average rate of return on borrowed money is 4.6 percent, certainly not an exorbitant rate. And the dollar does not now have such an intrinsic value in comparison with its worth when the loans were made as to suggest any injustice in that direction, particularly when we consider the effect of legislation relating to the gold clause commonly found in railroad securities.

It is doubtless true that certain railroads find themselves in such financial straits that they cannot meet their interest obligations. In those cases, financial reorganizations cannot be avoided. The recently enacted bankruptcy statute furnishes a medium through which this process can be carried on in an orderly manner under the watchful eye of the Interstate Commerce Commission and the courts. If this statute, of which so much was hoped, has proven ineffective (as so many claim), and if some way may be found to improve it by amendment, with due regard for the Constitutional rights of creditors, then certainly everyone should welcome new legislation on the subject. I respectfully submit that much of the hue and cry for extensive and compulsory reorganization is the product of hasty consideration of the subject.

Sinking Funds

Another suggestion which has been extensively discussed, is that the railroads should create reserves in the nature of sinking funds for the purpose of retiring their bonds, so that when these obligations mature, a considerable part may be retired, rather than refunded. That such a policy, if it were possible, would strengthen railroad credit, no one will dispute. The effect would be, of course, ultimately to reduce the capital structure to such amounts as had been contributed by the share

owners. Obviously the stockholders (too often I fear now in the category of the forgotten man) would be called upon to make the sacrifices necessary to accumulate the reserves for the retirement of the bonds.

But would the public be willing, after these bonds had been retired, to pay rates sufficient to compensate the share holders for their lean years? This is a phase of the matter to be considered. Aside from this feature, we may well ask: Where is the money coming from with which to create these sinking funds? After all, it is a question of revenues, and perhaps incidental to certain more fundamental considerations. I am sure that those who are charged with managerial responsibility would gladly adopt the policy of accumulating reserves for this purpose, if due regard for the rights of stockholders and the state of the railroad exchequer would permit.

I am not unaware of the consideration that has been given to plans for consolidations on a large scale as a solution of the problem. No one can successfully refute the contention that a policy of wholesale consolidations would produce a substantial reduction in operating expenses, the extent of the saving depending upon the scope and type of the unification. It would no doubt result in abandonment of trains, the rerouting of substantial amounts of traffic, the consolidation of terminal operations and the like.

The success of such a policy must depend in large part upon two factors which cannot be ignored. The first is the extent to which the American people are prepared to surrender the principle of competition in railroad service. For, unquestionably, any scheme for large scale railroad consolidations must involve the sacrifice, if it be so called, on the part of a large part of the public of the privilege of being served by more than one railroad.

Consolidation and Pooling

This is generally understood, and the advocates of this particular remedy have met the issue frankly and squarely by pointing out the diminished value of competition under a system where many of the activities of the carrier are regulated by law. The second factor of major importance is the attitude of railroad labor, hitherto hostile to a policy which would seem to involve a reduction in the number of employees. Present, also, in any plan looking toward a reduction in the number of operating companies are legal and financial problems, which while probably not insolvable, call for careful and protracted consideration.

Somewhat akin to consolidation in its effects upon expenses, and yet having the merit of greater simplicity and facility for being made immediately operative, is the plan for pooling operations upon an extensive scale. Here again opposition may be encountered from those who deplore any decline in competition and from the ranks of union labor powerfully organized for influencing public opinion. But as indicated, extensive pooling arrangements can be effected without disturbing the corporate structures of the railroads, either legal or financial. The Federal Co-ordinator has suggested the application of the principle to the handling of less than carload traffic, and in the common use of ordinary freight cars.

From quarters which are well-informed has come the suggestion that all the traffic of the United States may profitably be handled in three or four great pools, each conducted by an operating company owned by the railroads in the area of operation under a plan which would distribute net railway operating income according to earnings during a selected test period when operations were normal.

I mention these theories and suggestions, not to endorse or condemn them, since I lack both authority and the competency to do so, but in order that you may understand how active is the ferment in the railroad world looking toward a practical solution of some of the difficulties.

No discussion of my subject can ignore the experiment in governmental regulation reflected in the emergency transportation act of 1933, and the labors of the Federal Co-ordinator which that act provides for. The purpose of this legislation is well understood, and in fact clearly stated in the law.

To accomplish these declared purposes, coordinating committees were created with authority in the Federal Co-ordinator to make effective the recommendations of the committees, and in certain cases to enforce independent conclusions of his own. We are all aware of the extent to which activities under the statute have been retarded by the labor provisions of the act, inserted upon the insistence of the Senate, under which no plans for reducing expenses can be carried out if thereby there is a reduction in the number of men employed, or a change for the worse in the status of any single employee. Handicapped as he has been in effecting actual savings, the Co-ordinator has diligently and intelligently devoted himself to the task of investigation and inquiry into every phase of transportation and his reports and recommendations on the subject, when completed, will undoubtedly prove to be of inestimable value. The emergency act will expire, by its own terms, in June, 1935, and Congress will be confronted with the question as to whether legislation shall be enacted making permanent some or all of the theories that are reflected in the act.

There are some who advocate a Secretary of Transportation who shall be a member of the Cabinet and to whom shall be transferred the purely administrative duties now devolving upon the Interstate Commerce Commission. Perhaps a more popular suggestion is that the law provide for an independent administrative officer with a comparatively long tenure of office, charged with the duty of investigating practices and methods existing in every field of transportation, and giving advice not only to Congress and the Executive branch, but to the carriers as well. Upon this officer may very well be conferred some of the nonjudicial duties now resting upon the commission.

An Appeal for Self-Regulation

Whatever may be the form of this new legislation, if indeed any is desirable, I lift my feeble voice in humble appeal for the privilege of self-regulation with respect to matters not as yet covered by permanent legislation. Conceding freely the right of the public to have a tribunal to which it may resort in matters that affect the public interest, I submit that in questions that involve only matters of managerial discretion, public regulation has gone far enough.

The men responsible for railroad policies are not unaware of the dimensions and the seriousness of the problems that confront the industry. They are alive to the necessity for a certain amount of co-operative action. They realize the strength that follows united effort in matters of common concern. They are intimately familiar with the details of operation on their own lines, while at the same time mindful of their position as parts of a larger whole. They rest under a lively sense of trusteeship as custodians of property, operated not only for the benefit of the owners but likewise with due regard for the public interest.

As an evidence of a settled purpose to accomplish a proper measure of self-regulation in the railroad in-

dustry, I point to the recently created Association of American Railroads, to the plans and purposes of which practically all the Class I roads of the country have enthusiastically assented. It is an organization with definite ends in view. It will devote its energy under the guidance of its board of directors, its full-time executive committee, and its president to the solution of problems of common interest looking toward the elimination of wasteful practices wherever found, the coordination of activities wherever practicable, and the adoption of methods which will promote efficiency and economy. No phase of railroad activity will be neglected. It will give particular attention to benefits that follow systematic planning and careful and scientific research.

We believe it will provide a medium for self-regulation which will be far more effective than could be provided by any government agency, whatever might be its powers.

Naturally, I am not overlooking the prime necessity for additional legislation which will subject to sensible and appropriate regulation, agencies of transportation competitive with the railroads. The limits upon my time and upon your patience will not permit an extended discussion of this subject. I think all of you are familiar with the arguments for equality of regulation—arguments which seem to me unanswerable, and which I think have persuaded the American people to such an extent that I believe there is an overwhelming sentiment in the United States in favor of the principle of equality with respect to regulation, subsidies and taxation.

Certainly the necessity for regulation of all the competing forms of transportation has been recognized by the President of the United States, the Federal Coordinator of Transportation, the Interstate Commerce Commission, the National Association of State Railway and Utility Commissioners, the Chamber of Commerce of the United States, by a vast number of commercial organizations, and by many very responsible truck operators now engaged in common carriage. When we add to these the united support of railroad employees speaking through their associations and brotherhoods, the insistence upon regulation as essential to order in the transportation world would seem to have assumed such proportions as would assure early legislative response to this general demand.

The Federal Co-ordinator has, I think, convinced the country in his searching reports and his persuasive addresses that regulation essential to the proper coordination of all forms of transportation can be accomplished only if the task is committed to a single regulating body charged with responsibility for protecting the public interest. I heartily endorse this view. And I do, fully realizing that it will be the policy of the regulating authority to foster and preserve every form of transportation that under equal conditions establishes its right to survive. Strong as is the railroad appeal on behalf of its employees and security owners, important as it is as a purchaser of materials and as a contributor to the expense of government through the medium of taxes, I yet realize that the railroads cannot survive if they have been rendered obsolete by the progress of invention and the inexorable operation of economic law.

I am confident, however, that they will stand the test. I propose, therefore, that the American people put them to the test under fair conditions. Let the Congress with high Executive sanction solemnly declare that private ownership and operation of railroads and other forms of transportation under suitable regulation in the public interest, is the declared policy of the government; that legislative bodies, state and federal, shall provide equality of treatment among transportation competitors in the matter of public regulation; that each one shall be made to pay its own way, and derive no sustenance from government subsidies, either direct or indirect; that each shall make suitable contributions in the way of taxes to the support of the government; and that each shall have the opportunity to exercise the right of self-regulation to the widest possible extent.

Under these conditions, we have no doubt that the railroads, with the resumption of normal business, will continue as they have in the past to serve the American people as the essential arteries of commerce.

N. I. T. League Favors Regulation of Truck Rates and Services

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interstate and foreign commerce. This action follows agitation for legislation providing for the creation of a cabinet position to be designated as the secretary of transportation. During the discussion of the regulation of transportation by means of industry codes, the league decided that it should not take any position either for or against the policy of continuing the industry codes which are now established. Where the industry, however, is engaged in transportation and has adopted a code which has been approved, the league will give consideration to the provisions of such code and the administration thereof insofar as they may affect transportation and take such action as in its judgment will be proper to protect the interest of the users of such transportation.

Reorganization of Regulatory Bodies

Following the discussion of a reorganization of the scheme for regulating transportation agencies by federal commissions, the membership adopted the report of its legislative committee, submitting a general outline of a program for the regulation of the various transportation agencies through separate commissions with provisions for co-ordinating the activity of the several bodies. The outline was approved by the league with the stipulation that the league does not advocate further regulation. The tentative program of the legislative committee provides that (1) the Interstate Commerce Commission be reduced from 11 to 7 members and retain substantially its present jurisdiction, (2) that the United States Shipping Board be restored as a regulatory body except that the number of members shall be reduced from 7 to 5 and that all regulation of water services and rates (except joint rail and water rates) be administered by it, (3) that a highway transportation commission of 5 members be created for the regulation of motor trucks and motor buses to the extent that a regulatory policy may be adopted, (4) that the Bureau of Public Roads in the Department of Agriculture be abolished and the organizations there maintained be transferred to the Highway Transportation Commission, (5) that there be created a transportation policy board which shall consist of the chairmen of the three regulatory bodies above described and which shall have the power upon appeal from any of the regulatory bodies of determining any matters of general regulatory policy in order to attain a harmonious scheme of regulation and in order to prevent destructive

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Motor Transport Section

Motor Truck-Inland Station Plan Speeds Erie Service at New York

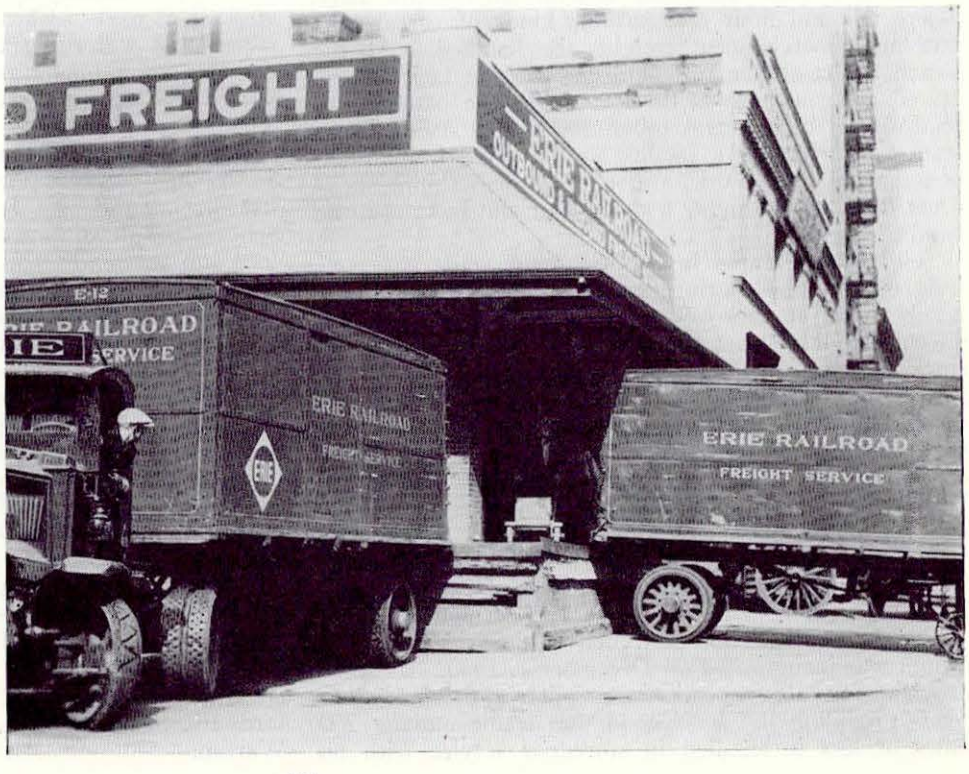
Three off-track facilities also produce important economies in the handling of both carload and l.c.l. freight

TRUCKING operations conducted by the Erie between its New Jersey railheads and inland, off-track stations on Manhattan Island, New York, have enabled that railroad to effect important economies as well as to expedite both its carload and l.c.l. freight services in that metropolitan area. The system-wide storedoor service which the Erie inaugurated a year ago, has, of course, been a major factor in speeding up the dispatch and delivery of l.c.l. freight; but the time required for the receipt and delivery of carload freight at New York has likewise been measurably shortened—and the handling of such services made less expensive to the railroad—by the development of the off-track stations and their attendant trucking in lieu of floating operations.

Railroad marine services in New York harbor have always been an expensive freight-transfer operation. For this reason, when the Erie's waterfront pier stations on Manhattan Island became congested in 1921, this road turned to the inland station-motor truck combination as holding potentialities for a more economical set-up than would have resulted from the acquisition of additional waterfront facilities, even if such could have been acquired. Its experience with this innovation was so satisfactory that the Erie has continued to operate its three Manhattan inland stations, which serve the lower west side of the island, handling all goods and commodities except perishables. These stations are: Greenwich Street station, located at 415-427 Greenwich street; Beach Street station, located at 48-60 Beach street; and Watt Street station, located at 146-154 Watt street. These stations are operated exclusively by the Erie and are distinct from its participation in the Union Inland freight station in the Port Authority Commerce building at 111 Eighth avenue, which is a joint l.c.l. station facility of all railroads serving New York.

Operating Arrangements

Of the highway equipment shuttling between the Greenwich, Beach and Watt street stations and the Erie's New Jersey railheads, the Erie leases the trailers and contracts with the United States Trucking Corpora-



Freight Transfer Equipment at Watt Street Station, One of the Erie's Three Inland, Off-Track Facilities on Manhattan Island

Twenty-Eighth Street Station and Team-Track Yard, the Principal Concentration Point of the Erie's Collection and Delivery Services in New York City

tion for the necessary tractor service. Carload freight is, under this arrangement, trucked from the Erie's Jersey City, N. J., terminus and placed on the inland station platforms to await its acceptance by the consignee. Such l.c.l. freight as is handled at these stations is delivered from them to consignees by the pick-up and delivery trucks of the United States Trucking Corporation, which is the Erie's agent also in connection with its storedoor service at New York. In reverse manner outbound carload freight is received from consignors at these inland stations and thence trucked to Jersey City for forwarding by rail; outbound l.c.l. is assembled at the stations for consolidation into Jersey-bound trailer loads. Erie ferrys are used by the highway vehicles for their North River crossings.

The Greenwich Street station is the center of the three. There inbound flour and various kinds of cereals and outbound merchandise freight are handled. At the Beach Street station, inbound carload and l.c.l. are received and much space is devoted to the handling of ready-to-eat cereals and other dry foods. Watt Street station is primarily a facility for handling freight outbound from New York, although inbound shipments of great density or weight, both carload and l.c.l., are also handled there.

While, as indicated in the foregoing, some Erie l.c.l. freight is handled at the three off-track inland stations, a substantial amount of it is concentrated at the Erie's Twenty-Eighth Street station. This latter is not an off-track station for, although it is not located on the waterfront as are pier stations, it is within a short distance thereof, and is adjacent to an Erie team track yard to which cars are switched from car floats. L.c.l. cars are, therefore, floated from the New Jersey railheads to this station where the freight is sorted for delivery to consignees in Manhattan. Likewise outbound l.c.l. is concentrated at the Twenty-Eighth Street station by the pick-up trucks and there loaded into cars for transfer by car float to the Jersey City terminus.

The Erie's collection and delivery service for l.c.l. freight was inaugurated on December 1, 1933. Its tariff provisions in this connection are similar to those of other roads providing the service, in that traffic moving 260 miles or less is handled in storedoor service with no charge over previous station-to-station rates; while for distances beyond that minimum, charges range from one cent to six cents per 100 lb. for either pick-up or delivery.

I. C. to Offer Co-Ordinated Truck and Rail Service

CO-ORDINATED truck and rail service of livestock from the feedlot to market all under one billing and without extra cost to the shipper will be offered experimentally by the Illinois Central at 22 stations on its lines west of Chicago beginning December 20. The experiment will run six months. The extension of the practice for a longer period and into other territories will depend upon the reception accorded this experiment. The new truck and rail arrangement is intended to give the smaller shippers the advantage of carload rail rates and related marketing commissions. As compared with trucking all the way, it is expected to reduce losses in bruised and dead animals, to permit stock to take better feed and water fills and to get the shipments to market looking better and commanding higher prices. Straight or mixed lots of 1,000 lb. or more of calves, cattle, goats, hogs, kids, lambs and sheep will be picked up by truck at farms within a radius of 10 miles of any of the 22 stations and assembled in the Illinois Central stock pens or yards for forwarding by rail in carloads.

Contracts covering this pick-up service have been made by the railroad with local truck operators. The railroad will pay the charge of all trucks it sends out, and it will allow three cents per 100 lb. to livestock owners in the same area who deliver their shipments at the stations. The stations at which it will apply experimentally are: Alworth, Ill., Apple River, Charter Grove, Council Hill, Dyersville, Iowa, East Dubuque, Eleroy, Ill., Epworth, Iowa, Farley, Freeport, Ill., Galena, Irene, Lena, Manchester, Iowa, Nora, Ill., Perryville, Peosta, Iowa, Rockford, Ill., Scales Mound, Seward, Waddams Grove and Warren.

Sound Truck Regulation Necessary*

Co-ordinator of transportation expresses belief that federal regulatory body should be created

By Joseph B. Eastman,
Federal Co-ordinator of Transportation

THE motor truck has improved the art of transportation in important respects; it supplies a service which the country wants, a service that ought not to be stifled. As a matter of fact, it is impossible to stifle it. On the contrary, it will continue to grow. Furthermore, while this new means of transportation has taken traffic from older means, it has also created new traffic on its own account. What the country sorely needs is improvements in the art and conduct of transportation which will bring down actual costs, make service better and increase the volume of movement, to the advantage of investors, shippers and labor alike. Extensive improvements of this kind are possible—by the railroads, by the trucks and by every form of transportation—particularly if they will seize upon the opportunities which exist for the right sort of co-operation with each other.

In some states the railroads have urged and secured legislation directed against highway vehicles which is opposed to their own best interests, having in mind what they will be able to do with these vehicles in their own operations. The other side has been equally guilty in some of its opposition to legislation. The existence in every state capitol and in Washington of armed camps, on the one hand of the railroads and their allies, and on the other hand of the truck manufacturers and operators and their allies, both sides resorting to all the modern and old-time methods of propaganda and influence, is worse than a waste of brains and funds; it will do neither of them any good, will harm them both, and is not in the best interests of the country.

Transportation a Public Business

Common transportation for hire has from time immemorial been regarded as a public business all over the world. It is too vital to the well-being of the people to be regarded in any other light, and it has always been recognized that it is a proper subject of public regulation. The essentials, from the public standpoint, are safe, reliable and convenient service at known, dependable and reasonable rates, free from unjust discrimination, by responsible operators able to operate with economy and efficiency and with sufficient financial strength to expand as need develops and take advantage of all improvements in the art of transportation.

Public regulation is necessary to produce these results. If the door is opened wide to permit all comers to engage in the business, regardless of the public need or their own qualifications and to charge at will for their services, the result is cut-throat competition which leads to all manner of rank discriminations, usually in favor of the big fellows who have the most business, and to unreasonable rates where opportunity offers, and winds up in a financial demoralization which imperils safety and good service, undermines labor, destroys the stability which good business conditions demand, and eventually stops the investment of funds necessary to development. Whatever advantages shippers may at first seem to gain in such a free-for-all fight are wholly temporary.

The N. R. A. Trucking Code is not a reluctant confession, but, instead, a direct assertion of the need for regulation. The code is called self-regulation, but it is dependent upon a statute of Congress and ultimate authority and responsibility rest with public officers. Theoretically, at least, it is a form of public regulation.

The code has accomplished some good results. It is much better than no regulation. A strong central organization for the trucking industry is also necessary as is such an organization in the railroad industry. It is the only way to deal effectively with the matters which are of common concern to all. But neither the code nor a central organization or both will fill the bill. No business which is so affected with the public interest as transportation can regulate itself to the satisfaction of the country, even with government help. There are too many people outside the industry who have a direct and vital interest in what it does and have a right to be heard. It is a public and not a private business and must be dealt with accordingly.

Therefore, commission regulation is necessary. There is no way of getting consistent, impartial and co-ordinated regulation directed to a common end unless a single federal agency has responsibility for the entire transportation situation. Separate commissions are bound to work at cross purposes. Each will become the partisan of its own form of transportation; each will see one corner of transportation and not the whole picture; their policies will pull in many different directions; the transportation muddle will still be with us.

The single agency would naturally be the Interstate Commerce Commission. There is a fear that the trucks would not get a square deal at the hands of that body, not because its members are not honorable men, but because they have been so busy regulating the railroads for many years that they will see all problems with railroad spectacles and will not be able to understand or appreciate the different conditions and many special circumstances which surround truck transportation.

I have been a member of the commission for 15 years, and I know it is made up of intelligent men sincerely trying to do their duty, without regard for politics or other like influences. It may be that one reason it is thought to be "railroad-minded" is because it has not given protection to trucks, against unfair railroad rate-cutting. But a commission which has no control over truck rate-cutting is likely to be somewhat lenient with railroad retaliation.

Truck transportation is a far different thing from rail transportation. The many special conditions which surround it must be given the most thorough consideration, and its regulation cannot with any propriety be forced, regardless of these conditions, into the railroad mold. Many of the experts of the commission have naturally been recruited from railroad sources. That

* From an address delivered before the American Trucking Associations at Chicago, on October 22.

condition would certainly be changed if the commission is given jurisdiction over motor and water carriers, because it would at once feel the need of experts with other training.

There is a fear that in the regulation of motor transport rates, they will be related to existing railroad charges instead of being based on the cost of motor transport itself. It may be convenient in many instances to state motor transport rates in terms of railroad rates, and the truck operators have often done that of their own volition. But when any fundamental question arises as to the bottom level of the rates, there can be no escape from the conclusion that the fair cost of motor transportation is of paramount importance. Indeed, any other course will most certainly defeat itself, owing to the opportunity which many shippers have to operate their own private trucks and of which they cannot be deprived.

In the regulation of motor transport rates by state commissions, they have frequently been fixed on the railroad model. In many such instances this has been done to meet the wishes of the truck operators themselves. In other cases it is not unlikely that the state agencies have fallen into error. But one result of federal regulation of the motor transport industry will be to provide leadership in regulation by the central government. This is no reflection on the states. They have been pioneers in the regulation of every form of transportation and public utilities, but there is often need for some uniformity of policy, and the federal government can be of great help in bringing that about.

It may well be that the same leadership should in time be exercised by the federal government in the matter of the size and weight of the motor vehicles which may be permitted to use the public highways. As yet I have gone no further than to provide in the proposed legislation that the Interstate Commerce Commission, in co-operation with other federal authorities, shall thoroughly investigate this subject and report to Congress. But plainly the reasonable use of the public highways in interstate commerce, and particularly of those which have been built with federal aid, is a matter which cannot ultimately be left to the decision of the states, if any insist upon the prescription of unwise and unreasonable regulations which tend to obstruct the free flow of interstate commerce.

Sound and well co-ordinated public regulation of transportation will not stifle the railroads or the trucks or the water lines or the air carriers. It will curb the activities of certain types of brokers. It will prevent the driving of rates down to a level for which there is no economic justification. It will tend to cause both the railroads and the trucks to abandon operations where the other agency has so great an advantage that they cannot hope to reap a profit. It will encourage and stimulate co-operation between the two agencies.

There are great opportunities for the utilization of trucks in the railroad business to supplement or substitute for present rail service. Already these opportunities are beginning to be perceived, but we are only on the verge of what is possible. I expect to see a large use of trucks in terminal service and for short-distance movements and a close co-operation with the trucks on the longer hauls through such devices as demountable truck bodies or the transportation of semi-trailers. Nor is there any reason why these developments should shut out the independent truck operator. There is good evidence that the railroads see the advantage of employing the men who are experts in this business, instead of trying to carry it on themselves.

What the country wants and needs is a national transportation system which will give proper scope to every form of transportation but keep all within reasonable bounds and prevent the economic waste which always results from unlicensed competition. Motor trucks operating over the public highways have proved their worth and their rightful claim to a place in the sun. No sane man wants to deprive them of that. All that we are after is real government leadership in transportation and the promotion of order and stability and sound conditions and the avoidance of demoralization and chaos.

N. I. T. League Favors Regulation of Truck Rates and Services

(*Continued from page 650*)

competition between the agencies. The following resolution was adopted:

> The National Industrial Traffic League does hereby reiterate its policy of opposition to government ownership or operation of railroads and that the league oppose any legislation or governmental plan which contemplates the appointment of government employees or representatives upon the managing boards or boards of directors of railroad companies and that a special committee be appointed to handle this subject and place the views of the league before the public and before the appropriate agencies.

It was recommended that the government subsidize railroads for an experimental period of five years and that the league endorse such a proposal. No action was taken on the matter, the proposal being referred to the legislative committee for consideration.

Eastman Solicitation Questionnaires

Consideration was given to the questionnaires being sent out by Co-ordinator Eastman, investigating the freight and passenger solicitation methods of the railroads. The league feels that the Association of American Railroads is the proper agency to investigate the subject of freight solicitation and that it should consider the question promptly, giving shippers an opportunity to make representation before that body. The league favors the present set-up as an aid to shippers who cannot afford a traffic organization and feels that any investigation of solicitation should take into consideration the opinions of small concerns which were not obtained by the Eastman questionnaire.

The league approved its passenger traffic committee report which contends that (a) maximum fares only should be fixed, (b) minimum fares should not be fixed, (c) in standard first-class coaches passengers should pay the same fare as those who ride in Pullmans or parlor cars, but those patronizing more exclusive equipment should pay a reasonable seat fare in excess of the regular passenger fare; there should be no surcharge added to the reasonable seat or berth fare, (d) maximum fares should be fixed with regard to the varying transportation conditions in each of the major rate territories, (e) the charge for a round-trip fare should not be greater than the charge for a round-trip fare between more distant points over the same line or route and should not exceed the aggregate of the intermediate round-trip fares between the same points over the same line or route. If there is any reason for not selling a round trip to the directly intermediate point at the rate for the more distant point, agents at intermediate points should be authorized to validate the longer destination tickets for the return trip. The same restrictions or allowances as to time limit, stopover or amount of baggage to be rechecked free should govern in all cases.

NEWS

P. R. R. Electrification 80 Per Cent Complete

Efforts being concentrated on through New York-Washington passenger service for January

The Pennsylvania's electrification program, financed by the Public Works Administration, is more than 80 per cent complete so far as passenger service is concerned. All efforts are now being centered upon inaugurating through electric passenger train operation between New York and Washington, D. C., early in January, 1935.

The second and final step in the program, electric operation of the entire freight service in the same territory, will follow shortly afterwards. Electrification of the freight tracks and yards is already nearly 50 per cent complete.

The number of men engaged in the construction work has been pushed to new high marks with wage payments at the highest levels since the work started. The employes, all of whom are furloughed Pennsylvania men, now number 11,200 and the monthly payroll has increased to over $1,000,000. This is exclusive of the forces currently employed in the railroad shops on equipment work also financed by the P.W.A. Government and railroad officials estimate that for every man employed by the railroad on the electrification project another is working in one of the supply industries, so that the total number given employment is approximately twice those on the railroad payroll alone. Eighty work trains are operating daily on the electrification job. Construction everywhere is going forward fully up to prearranged schedules.

For convenience, the project has been divided into three sections. In the first, which extends from New York to a point just north of Philadelphia, Pa., the main passenger tracks had been electrified prior to arranging for the P.W.A. fund. The work now under way in this section, including electrification of the Princeton branch, additional tracks through Trenton, N. J., and the trackage between Rahway and Woodbridge Junction, is 60 per cent complete. Electrification of the freight trackage is 65 per cent complete. Two new sub-stations are being built in this territory and eleven others are being enlarged.

In the second or middle section, extending to Back River, Md., on the northern outskirts of Baltimore, passenger electrification had previously been completed as far as Wilmington, Del. The work now going forward includes electrification of the main line freight tracks and yards, the "high line" through Philadelphia, additional work at the new Pennsylvania station in Philadelphia, and electrification of the passenger trackage south of Wilmington, Del. In this section passenger electrification is 88 per cent complete and freight 53 per cent. Five new sub-stations are being built, and seven previously constructed are being enlarged.

In the third section, from Back River to Washington, passenger electrification is 76 per cent complete and freight 22 per cent. To meet the requirements of this territory nine new sub-stations are approaching completion.

Thus far the expenditures for materials and supplies for the roadway electrification and for the electric locomotives being constructed in the company's Altoona, Pa., shops approximate $13,000,000. To complete the roadway electrification and the locomotives at Altoona will require $3,000,000 more. Electric locomotives now under construction by outside locomotive builders, and nearing completion, will cost $3,600,000 additional.

Almost $15,000,000 will be spent during the next few months on 57 new streamlined electric passenger locomotives for the New York-Washington high-speed service, orders for which were placed recently, as was reported in the *Railway Age* of November 17.

Materials and apparatus used in the building of the overhead wire lines and the electrical sub-stations are numerous and varied. The structural steel involves an expenditure in the neighborhood of $1,500,000; wire, cables, bonds and insulators, some $3,000,000 more; electrical apparatus in the sub-stations, about $5,500,000, and items of a miscellaneous nature, an additional $1,500,000.

The entire electrification project, through from New York to Washington, requires in round numbers 26,000 steel poles. Of these all except about 1,000 are now in place.

A.A.R Asks I.C.C. to Lift Suspension of Refrigerator Car Tariff

The Association of American Railroads, in its first appearance as a party before the Interstate Commerce Commission, has filed a petition asking for a reconsideration of the commission's order of October 31 in which it suspended a tariff filed by the railroads in purported compliance with the findings in the commission's report of its investigation as to privately owned refrigerator cars in which the carriers proposed to reserve to themselves the exclusive right to furnish refrigerator cars. The commission is asked to lift the suspension.

Grade Crossing Program Being Studied by Ickes

P.W.A. Administrator makes brief reference to the subject in recent statement

The possibility of including a grade crossing elimination program in the proposed public works program for the coming year was discussed briefly by Secretary Ickes, of the Interior Department, administrator of the Public Works Administration, in a statement given to the press last week quoting an article he had written for the magazine "Today."

Careful studies of a preliminary nature are now being made, he said, "of the possibility of still further enlarging the public works program in a renewed drive against the depression. Our enlarged program has not as yet been formulated, but I shall mention a few fields which we are examining which possess considerable potentialities. For quick effect upon unemployment this winter we need several kinds of work which will utilize standard equipment, which can be undertaken without extensive engineering plans, and which can therefore be completed in from three to four months after authorization. Many experts feel that we have two such kinds of work at hand in rural electrification and grade-crossing elimination."

Many conferences have been held and many kinds of plans have been under consideration for including an extensive amount of grade separation work in such a program. The Bureau of Public Roads has assembled a great deal of information as to the amount of such work that could be started on short notice. Various plans have also been under discussion for financing such a program, although in the recent discussions most of those who have advocated an extensive grade crossing program have taken the position that it should be financed directly by the federal government.

In addition to the planning for a large public works program for next year railway engineering officers have been in contact with the Bureau of Public Roads in connection with the consideration of an emergency program which might be undertaken from existing appropriations in order to create additional employment this winter and have furnished the bureau with descriptions of projects on principal high-speed lines on which work could be started promptly. There have been suggestions that possibly as much as $125,000,000 might be obtained for an emergency program, while suggestions for much larger sums have also been

discussed in connection with proposals to obtain additional appropriations from Congress.

Freight Claim Division to Meet in Chicago

The 1935 annual session of the Freight Claim division of the Association of American Railroads will be held in Chicago, the date to be decided later.

Eastman and A.A.R. Committee Inspect New Hopper Car

Co-ordinator Eastman and the members of the executive committee of the Association of American Railroads on November 15 inspected the new light-weight hopper car, constructed of Cor-Ten steel by the Pressed Steel Car Company, described in the *Railway Age* of November 10, which was on exhibition at Washington.

N. & W. Holiday Fares

Reduced round-trip fares for the Thanksgiving holiday are being offered by the Norfolk & Western between all stations on its line and to several other points in the greater part of the southeast and the east. The tickets between Norfolk & Western stations will be sold from November 28 to December 2 inclusive at 1 1/3 times the one-way fare for the round-trip and will have a return limit of December 3.

Milwaukee Locomotive Makes Record Mileage

The record of 18,390 miles in a single month made by a 4-6-4 locomotive of the Chicago, Milwaukee, St. Paul & Pacific, as described in the *Railway Age* of December 23, 1933, page 875, was bettered during the month of October by Baldwin-built locomotive No. 6415 of the same type which is operated by the Milwaukee in fast passenger service between Minneapolis, Minn., and Harlowton, Mont., when it ran up a total of 19,200 miles.

Southern Proposes to Continue Reduced Passenger Fares

In order that it may continue its experiment with reduced passenger fares the Southern has applied to the Interstate Commerce Commission for a suspension until September 30, 1935, of the effective date of its orders holding in abeyance former orders requiring the imposition of surcharges for passengers in sleeping or parlor cars. The orders were oiginally issued to require the surcharges in various states but were held in abeyance in order to allow for the low-rate experiments.

Eastman Allotted Additional Funds For Study Of Labor Problems

An additional allotment of $140,000 to the federal co-ordinator of transportation from funds of the Public Administration has been approved by President Roosevelt in an executive order to complete work on which his Labor Relations Section has been engaged during the past year in making studies, collecting and analyzing data and formulating plans concerning railroad labor conditions and relations, particularly in connection with pensions and retirement insurance, unemployment insurance, and wages. The co-ordinator's organization had previously been allotted $384,000 of P.W.A. funds, for a study of the employment and earnings history of approximately 300,000 railroad employees which was carried on as a federal civil works project in connection with the study of pension systems, but the new order somewhat broadens the scope for which the money can be used. These allotments are in addition to the contributions made by the railroads for the expenses of the co-ordinator's organization and its investigations, as provided for by the law creating the office.

Business Advisory Council Creates Transportation Committee

The Business Advisory and Planning Council, appointed by the Secretary of Commerce in June, 1933, to advise with the secretary on departmental matters from the point of view of representative business men, at its meeting in Washington on November 15 appointed a transportation committee, under the chairmanship of W. A. Harriman, chairman of the board of the Union Pacific. The committee is to make available to the Secretary of Commerce recommendations for co-ordinating the national transportation system.

New Haven Establishes Sales and Traffic Development Section

The New York, New Haven & Hartford has established in its traffic department a new section to be known as the "Department of Sales and Traffic Development," according to an announcement on November 17 by F. J. Wall, traffic vice-president. This new department will handle the selling of all forms of transportation, both freight and passenger, produced by the co-ordinated services operated by the New Haven system, embracing the railroad, steamship lines, motor trucks and motor coaches.

"It will be the purpose of the new organization," Mr. Wall said, "to commercialize the traffic soliciting activities and also study ways and means of better adapting its co-ordinated services to meet the transportation needs of the territory served, including industrial development." A. A. Drummond, assistant freight traffic manager, has been appointed sales traffic manager to head the new organization with headquarters at Boston, Mass.

AB Freight Brake Mandatory After 1944

The Board of Directors of the Association of American Railroads on November 16 adopted the recommendations of the General Committee, Mechanical Division, to provide that on and after January 1, 1945, all freight cars in interchange must be equipped with the AB brake. This action follows the adoption, by a vote of more than 80 per cent of the letter ballots cast, of the proposition to modify section (a), paragraph 4, Interchange Rule 3, to require that all cars in interchange service on and after January 1, 1945, must be equipped with brakes meeting the requirements of the A.R.A. specifications for air brakes adopted in 1933. Quarterly reports, showing the number of freight cars acquired and the number of freight cars on which brake equipments have been converted each month, are to be made by the railroads to the association.

A Trackman's Record

The December lecture of the Safety Section of the Association of American Railroads consists of a single poster, with no accompanying circular. The poster's leading feature is the portrait of a track foreman whose record is notable. He was track laborer for 7½ years and track foreman 42 years, but neither he nor any of his men were ever hurt sufficiently to cause loss of time, and he never had a motor car damaged. "Almost anyone can do as well if he tries," says the poster. When the boss is sold on safety, his men will follow on. The picture on the poster shows the foreman, and his gang of six men, on their motor car.

State Commissioners Urge Continued Efforts for Motor Regulation

The National Association of Railroad and Utilities Commissioners, on the final day of its annual convention in Washington last week, November 15, adopted a resolution instructing its committee on legislation to continue its efforts for the enactment of federal legislation covering the interstate operation of motor vehicle carriers on the public highways. The association also adopted a resolution reiterating its stand taken in previous years to the effect that the association is opposed to any encroachment upon the regulatory jurisdiction of the states (by the federal government), "as not being compatible with the local public interest which can best be served through agencies chosen by those whom existing problems affect."

Pullman Porters' Union Seeks Recognition

The first step since the enactment of the amended Railway Labor Act to obtain recognition of the Brotherhood of Sleeping Car Porters as the representatives of sleeping car porters and maids for purposes of collective bargaining was taken on November 14, when A. Philip Randolph, president of the brotherhood, addressed a letter to D. A. Crawford, president of the Pullman Company, seeking a conference for the purpose of making and maintaining an agreement concerning rates of pay and rules governing working conditions. In his letter Mr. Randolph said that his organization embraces over 51 per cent of this class of employees. The law provides that a majority of any craft shall determine who shall represent the entire craft. Heretofore the company has not conceded the authority of the brotherhood to represent its porters and maids.

National Railway Appliances Association to Hold Exhibit at Chicago

The National Railway Appliances Association will present an exhibit of materials and equipment employed in the construction and maintenance of railway tracks, structures and other fixed properties at the Coliseum, Chicago, on March 11 to 14, inclusive, concurrent with the Thirty-sixth Annual Convention of the American Rail-

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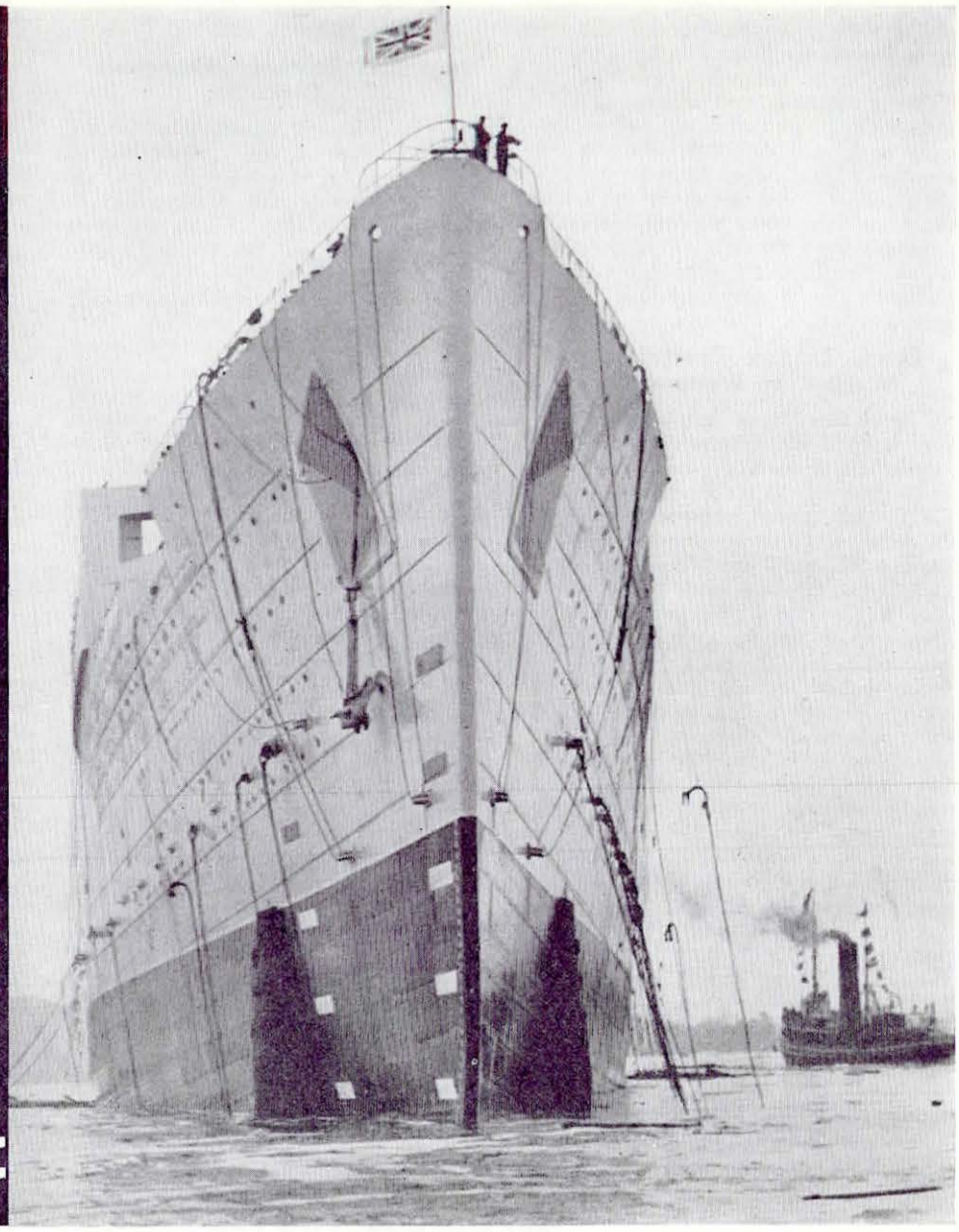
ANOTHER EXAMPLE of the SUPREMACY of STEAM in TRANSPORTATION



We salute S. S. Queen Mary, newest Mistress of the sea, and extend to her designers, builders and owners sincere congratulations on this magnificent feat of engineering.

After a study of all available methods by a Committee of Eminent British Scientists steam was decided upon for propulsion.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA OHIO

way Engineering Association. Definite action to this end was taken by the Board of Directors of the Appliances Association at a meeting on November 12, when the secretary was authorized to lease the Coliseum building, and exhibit space was awarded to all firms that had filed applications up to that date. As this allotment absorbed 70 per cent of the space available, the directors are confident that all exhibit booths will be taken up well before the opening day of the exhibit; and they have arranged to lease the north wing of the Coliseum also if additional floor area is needed.

Excess Baggage Charges to be Modified by Western Lines

The elimination of certain excess baggage charges and substantial reductions in others will be made by western railroads on December 1. At the present time special charges are exacted on pieces of baggage exceeding 45 in. in any dimension. These charges for excess size will be completely abolished. Baby carriages, go-carts, cribs play pens, bicycles, velocipedes, and tricycles which are now considered excess baggage and are charged for as such, will be handled without charge as regular baggage. Campers' outfits, tents, poles, bedding, folding cots, cooking utensils and boxed provisions, surf boards and toboggans will be given like treatment. Invalids' cots and stretchers when accompanied by a passenger will also be considered as regular baggage and will be returned unaccompanied to the point of origin without charge. The present value and weight limits on baggage transported without charge will apply in connection with the foregoing changes.

Rail passengers who carry their dogs, cats or birds with them on their journeys will benefit in the new tariffs through a reduction of 50 per cent in the minimum charges now made for the transportation of household pets.

New York Railroad Club Annual Dinner

The sixty-second annual dinner of the New York Railroad Club will be held at the Commodore Hotel, New York, on Thursday, December 13. A reception will be held, beginning at 6:15 p.m., preceding the dinner, which will be served promptly at 7:00 p.m.

Harlan A. Pratt, eastern manager, railroad department, Ingersoll-Rand Company, is general chairman of the Dinner Committee, assisted by Charles C. Warne, purchasing agent, New York Central, and Thomas P. O'Brian, eastern manager, O. M. Edwards Company as vice-chairmen; with Adrian E. McGuire, chief clerk, Car Equipment Department, Interborough Rapid Transit Company, as secretary. In addition, assistance will be rendered by sub-committees, with the following chairmen: Advisory Committee, David W. Pye, president, Tuco Products Corporation; Reception Committee, Frank Hedley, chairman, Interborough Rapid Transit Company; Dinner Committee, Arthur N. Dugan, vice-president, National Bearing Metals Company; Entertainment Committee, Sam F. Pryor, Jr., vice-president, Southern Wheel Company; Seating Committee, Harry M. Norris, secretary to general manager, Interborough Rapid Transit Company; Publicity Committee Roy V. Wright, vice-president, Simmons-Boardman Publishing Company; Attendance Committee, Carl H. Beck, eastern manager, Westinghouse Air Brake Company. The applications for reservations are being received by Mr. Norris, the chairman of the Seating Committee, at 165 Broadway, New York.

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Guests of the Baldwin Locomotive Works and the Bethlehem Steel Company Witness Loading at Eddystone, Pa., of Railway Equipment for Chile. The Shipment Included Ten Meter-Gage Locomotives and Tenders and Fifteen 74-Ft. Steel Coaches

Supply Trade

George Sherry has been appointed general merchandise manager and **H. B. Tompkins** has been appointed general sales manager of the **General Cable Corporation,** New York.

Frederick T. Wright, formerly associated with the White Motor Company and the Federal Motor Truck Company has been appointed manager of railway sales of the Cleaner division of the **International Equipment Company,** Chicago.

D. W. Atwater has been appointed manager of the commercial engineering department of the **Westinghouse Lamp Company,** with headquarters at Bloomfield, N. J. Mr. Atwater was graduated from Stevens Institute of Technology in 1916 and following the World War joined the commercial engineering department as an illuminating engineer.

Frank C. Jones, president, **Okonite Company,** whose election to the office of president, **National Electrical Manufacturers' Association,** was announced in the November 10 issue of the *Railway Age,* has been identified with the Okonite Company since his discharge from military service after the World War. Mr. Jones

Frank C. Jones

was educated at the Noble and Greenough School, at Boston, Mass., and was graduated from Harvard University in 1910. Following the war, during which he served as an officer in the Ordinance department, U. S. Army, Mr. Jones entered the factory of the Okonite Company, at Passaic, N. J. With his subsequent election as treasurer of the company, he was transferred to its New York office. He then became vice-president and general manager, holding that position until 1932 when he assumed the duties of president. Mr. Jones has devoted considerable time to the activities of the N.E.M.A., and is now chairman of the code advisory committee.

OBITUARY

William W. Darrow, president of the Camel Company, Chicago, died on November 18, at Philadelphia, Pa., where he had

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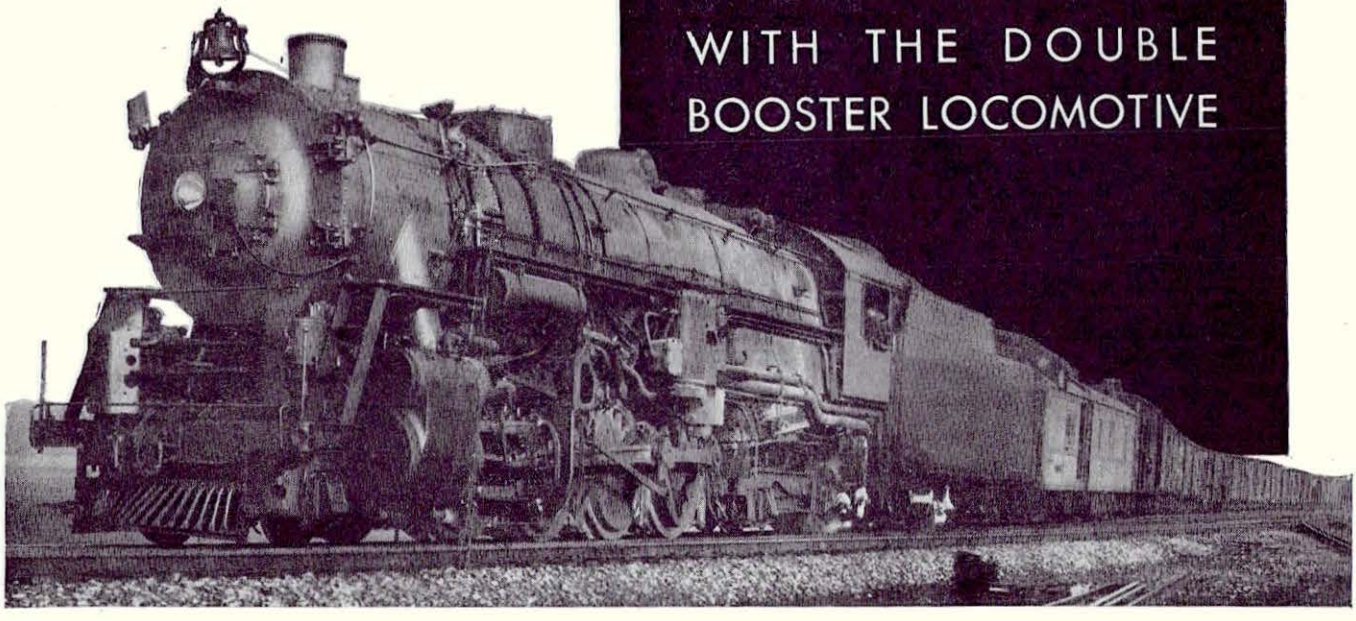
600 *Extra* TONS OVER THE HILL

WITH THE DOUBLE BOOSTER LOCOMOTIVE



When heavy trains meet heavy grades the Double Booster locomotive has definite advantages.

In the case of the 2-8-4 locomotive, shown above, the second Booster permits handling 600 additional tons on the ruling grade over any other locomotive in the same class.

No difficulty is experienced in steaming capacity for both Boosters for the time period they are required.

Booster power increases locomotive earning power, whether to meet special conditions such as this, or on engines in ordinary service, either passenger or freight.

The Booster capitalizes idle weight and spare steam.

Because material and tolerances are just right for the job, genuine Franklin repair parts give maximum service life

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

gone on a business trip. Mr. Darrow was stricken with a heart attack on November 14, and was taken to the Temple University hospital in Philadelphia, where he died.

William W. Darrow

Mr. Darrow was born on August 29, 1882, at Janesville, Wis., and graduated from the Chicago high schools. His entire business career was spent in the service of the Camel Company. He went with the company in 1901, and five years later he was advanced to secretary. In 1915 he was further promoted to vice-president, and in 1923 he was elevated to the presidency, which position he continued to hold until his death. Mr. Darrow was also president of the Camel Sales Company. During his entire period of service with the Camel Company, his headquarters were located at Chicago.

Equipment and Supplies

MISCELLANEOUS

ILLINOIS CENTRAL.—A contract has been given to the Evans Products Company, Detroit, Mich., by the Illinois Central for 400 additional car sets of auto loaders for installation in 400 of its automobile cars. This brings the total of cars so equipped on various railroads to 17,217.

Air Conditioning

Missouri Pacific—All passenger-carrying cars in all the principal trains on the Missouri Pacific will contain air-conditioning equipment by next summer, as a result of court authority issued on November 17 by Federal Judge C. B. Faris. The order issued by the court provides for the installation of air-conditioning equipment in 89 cars, including 68 Missouri Pacific, 17 International-Great Northern and 4 St. Louis, Brownsville & Mexico cars. With these cars, the Missouri Pacific will have 193 air-conditioned cars, of which 91 will be railroad-owned and 102 Pullman-owned. Eleven of the 68 cars to be air-conditioned on the Missouri Pacific will also be redecorated.

The Atchison, Topeka & Santa Fe has placed orders with the Safety Car Heating & Lighting Company for air-conditioning equipment for 167 Pullman and chair cars and coaches. The Santa Fe plans to air-condition 273 cars, including 78 railroad-owned and 195 Pullman-owned cars by next spring. The installation of equipment in the 167 cars is being done at its Topeka, Kan., shops.

The Southern Pacific will install air-conditioning equipment in 260 cars at a cost of approximately $2,000,000 within the next six months to supplement the 100 cars already air-conditioned. The 260 cars include sleeping, parlor, dining, chair cars and coaches.

Financial

ARIZONA EASTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 16.5 miles of branch line in Maricopa and Pinal counties, Ariz.

CHICAGO, ROCK ISLAND & PACIFIC.—*Gold Payments.*—Hearing on a petition to force payment of the dividends and interest in gold by the Chicago, Rock Island & Pacific was postponed on November 15 until January 15 by Federal Judge James H. Wilkerson. A similar test of the federal government's nullification of the gold clause is pending before the United States Supreme Court, following an appeal from the decision of Federal Judge Faris in St. Louis, Mo., that currency constitutes legal payment. This case involved the Missouri Pacific. The delay in the Rock Island case was taken to allow time for the high court's decision in the Missouri Pacific case.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—*Extra Dividend.*—The directors of this company have declared an extra dividend of $3, in addition to the regular semi-annually disbursement of $4, on its common stock.

MINNEAPOLIS & ST. LOUIS.—*Sale Postponed.*—Court sale of this property, which was set for November 17, has been postponed until February 12 in order to allow connecting roads to study the proposal made by Chairman Jesse Jones of the Reconstruction Finance Corporation that they acquire the M. & St. L. piecemeal.

MISSOURI PACIFIC.—*Trustees meet with with large creditors.*—Trustees of this road met in New York on November 22 with representatives of the Reconstruction Finance Corporation, the Interstate Commerce Commission and the Railroad Credit Corporation, and a group of bankers. The meeting which was called by the trustees—L. W. Baldwin and G. A. Thompson—was held, according to a statement issued by the former, "for the purpose largely that the trustees and those interested in the securities of the railroad might discuss the different problems confronting the properties, for the common benefit of the various interests, as well as the possibility of a reasonably prompt reorganization of various properties."

"The trustees of the railroads," the statement continued, "expressed the thought at the meeting that this assembly was the first of a series of meetings that they may hold during the period of their trusteeship at which all interests would sit around the table as they did today and discuss everything of interest to security holders and creditors of the lines in trusteeship.

"At the meeting today the trustees explained to those present that no one had yet submitted a plan of reorganization, and the trustees as representatives of the Federal court thought they were under an obligation to insist upon something being done in that direction within a reasonable period of time by either one or all of the various groups having substantial interests in these properties."

ULSTER & DELAWARE.—*Lawsuit.*—This company, the railroad of which is now operated by the New York Central, was ordered this week by Supreme Court Justice Aaron J. Levy in New York to give an accounting and make restitution of $1,250,000. The suit was brought by the Central Hanover Bank & Trust Co., as trustee under a mortgage executed by the railroad on June 1, 1888. The action was based on a real estate transaction which the road negotiated with the City of New York in 1913. In the proceedings the bank maintained that under a clause in the mortgage agreement the property under the mortgage could be released. The release was permitted "provided that all real estate or other property forming the consideration for such conveyance or release, or received in exchange, shall be conveyed or assigned to the trustee." In 1913 the bank, at the request of the railroad, released certain property which was turned over to New York City. Other property was received in exchange, which, in turn, was turned over to the mortgagor. The railroad, in addition, received $1,250,000 in cash. The bank, it was alleged, was not informed of the receipt of the money, which was carried on the railroad's books in the form of a "sinking fund reserve." The sum was kept intact until 1923, when it was paid out as a special dividend to the road's shareholders. The bank learned of the transaction in 1925 and instituted suit in 1928 for an accounting and restitution.

Average Prices of Stocks and of Bonds

	Nov. 20	Last week	Last year
Average price of 20 representative railway stocks..	35.34	35.81	38.54
Average price of 20 representative railway bonds..	73.35	73.92	62.06

Dividends Declared

Chesapeake & Ohio.—Common, 70c, quarterly, payable January 1 to holders of record December 7.

Cincinnati, New Orleans & Texas Pacific.—Common, $4.00, semi-annually, extra, $3.00, both payable December 26 to holders of record December 5.

Rochester & Genesee Valley.—$3.00, semi-annually, payable January 2 to holders of record December 20.

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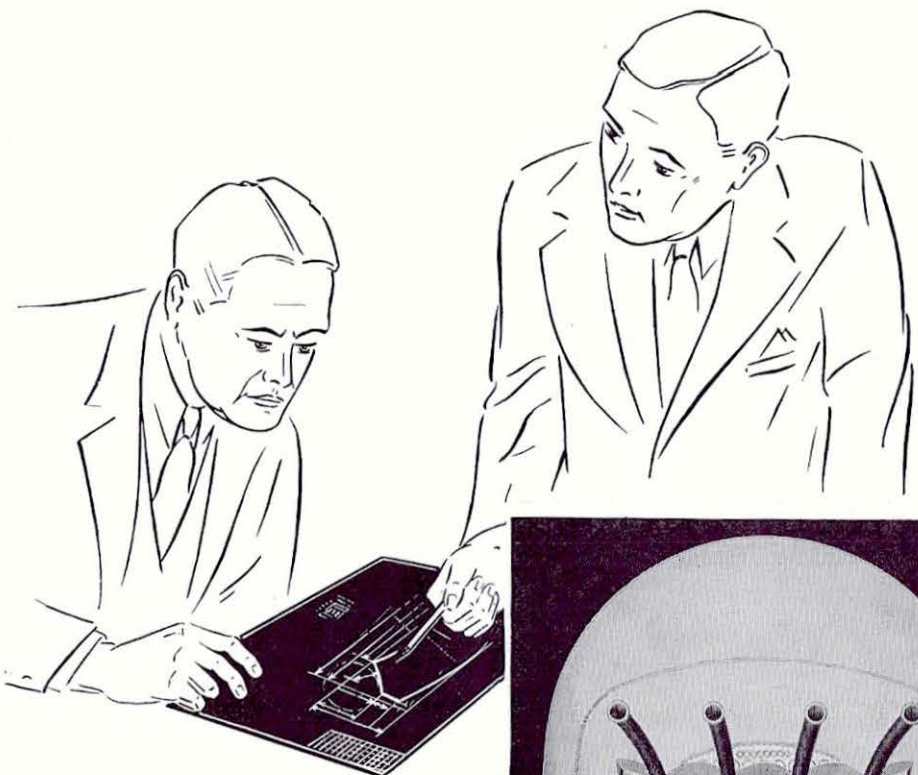

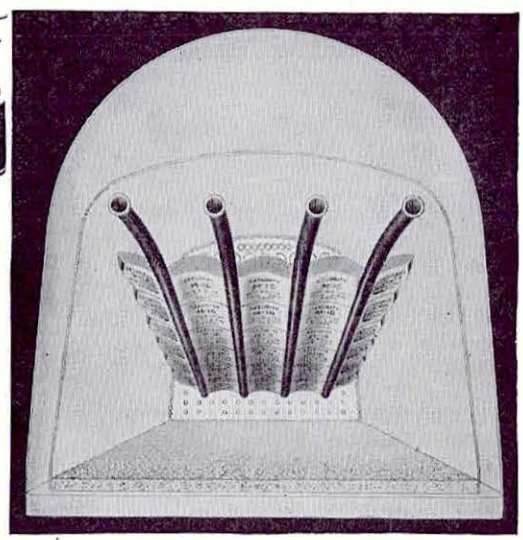

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YOU wouldn't expect much economy from a one or two course brick arch—but as more courses are added you rightfully expect economy in greater proportion.

To design a firebox arch of correct proportions involves a lot of engineering that only long experience can develop.

The American Arch Company has this experience extending over more than 25 years.

Security Sectional Arches are correctly proportioned for maximum fuel economy.

Leaving off the final course of brick reduces this economy out of all proportion to the saving in brick cost.

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Refractory Specialists

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AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists » » »

Railway Officers

EXECUTIVE

The following officers of the Indian Valley have been elected: **Edmond E. Herrscher,** president; **Cyril Stevenson,** vice-president and general manager; **J. W. Mason,** treasurer; and **Russell P. Tyler,** secretary; all with headquarters at San Francisco, Cal.

OPERATING

Clark Coe has been appointed general superintendent of the Indian Valley, and **Grant S. Allen** has been appointed superintendent, both with headquarters at Paxton, Cal.

N. M. Lawrence, division engineer on the Pennsylvania, with headquarters at Philadelphia, Pa., has been promoted to superintendent of the Erie & Ashtabula division, with headquarters at New Castle, Pa., succeeding **E. S. Reed,** who has been appointed superintendent of passenger transportation of the Central Region, with headquarters at Pittsburgh, Pa., succeeding **W. W. Patchell.** Mr. Patchell has been appointed superintendent on the staff of the vice-president with headquarters at Philadelphia, Pa.

Arthur H. Cavanagh, whose appointment as general manager for the Temiskaming & Northern Ontario at North Bay, Ont., was noted in the *Railway Age* of November 17, was born on August 17, 1887, at Kingston, Ont. Mr. Cavanagh entered railway service in 1906 as brakeman for the Temiskaming & Northern Ontario. From 1907 to 1920 he served successively as brakeman, conductor and construction superintendent, conductor, yardmaster and trainmaster for the Canadian Northern. He served as assistant superintendent for the Canadian National at Capreol, Toronto and Hamilton from 1920 to 1929 and as superintendent on that road at Hornepayne and Capreol from 1929 to 1931, becoming superintendent at Allandale in the latter year.

G. N. Slade, assistant superintendent of the Lake Superior division of the Northern Pacific, at Duluth, Minn., and superintendent of the Duluth Union Depot & Transfer Company, has been promoted to superintendent of the Yellowstone division, at Glendive, Mont. Mr. Slade replaces **D. M. Driscoll,** who has been transferred to the Rocky Mountain division, at Missoula, Mont., to succeed **J. H. Johnson.** Mr. Johnson has been transferred to the Idaho division, at Spokane, Wash., where he replaces **R. T. Taylor,** who has been transferred to the Tacoma division, at Tacoma, Wash., where he replaces **L. F. Newton,** deceased. **C. T. Sponsel,** assistant superintendent of the Lake Superior division at Duluth, has had his duties extended to include those of Mr. Slade. **H. J. McCall,** trainmaster-road-master at Mandan, N. D., has been appointed assistant superintendent in charge of maintenance on the Lake Superior division.

O. H. Page, assistant general superintendent of the Northern division of the Atlantic Coast Line, with headquarters at Rocky Mount, N. C., has been appointed general superintendent of the same division, with headquarters at Savannah, Ga., succeeding **J. P. Walker,** who has been transferred to the Southern division, with headquarters at Jacksonville, Fla. Mr. Walker succeeds **R. A. McCranie,** deceased. **R. G. Murchison,** trainmaster at Rocky Mount, has been promoted to superintendent of the Richmond district, with the same headquarters, succeeding **W. B. Darrow,** deceased.

The Wilmington district of the A. C. L. has been divided into two parts to be known as the Wilmington district and the Norfolk district. **C. M. Cobb,** superintendent of the old Wilmington district, at Rocky Mount, has been appointed to the same position on the new Norfolk district, with headquarters at Norfolk, Va. **Lloyd Crocker,** trainmaster on the old Wilmington district, has been appointed superintendent of the new Wilmington district, with headquarters at Wilmington, N. C.

Stanley F. Mackay, whose appointment as superintendent of transportation of the New York, New Haven & Hartford was noted in the *Railway Age* of November 17, entered the service of the New Haven as a mail clerk more than thirty years ago. He

S. F. Mackay

held various clerical positions in the operating department, subsequently serving as engine, passenger and freight car distributor in the transportation department, assistant chief clerk to the general manager and inspector of transportation. Mr. Mackay next served as chief clerk in various offices, including that of the general manager, and in 1928 was promoted to the position of superintendent of the Old Colony division, with headquarters at Taunton, Mass. In September, 1930, Mr. Mackay was transferred to Providence, as superintendent of the Providence division, the position he held until his recent promotion.

J. F. Doolan, whose appointment as superintendent of the New Haven division of the New York, New Haven & Hartford was noted in the *Railway Age* of November 17, entered railway service with the New Haven in 1904 as clerk to the yardmaster at New Haven. He subsequently served in various other positions in the

J. F. Doolan

operating department at New Haven, including crew dispatcher and rules examiner, following which he was transferred to New York as crew dispatcher at Grand Central Terminal. In 1917 he became chief clerk to the superintendent at New London, and the following year was appointed assistant trainmaster at New Haven. In 1920 he was made general trainmaster. Mr. Doolan was promoted to assistant superintendent in 1925, and last year served for a number of months as acting superintendent.

MECHANICAL

James W. North, master mechanic of the Port Huron & Detroit, with headquarters at Port Huron, Mich., has retired and **L. W. Miller** has been appointed master mechanic to succeed Mr. North.

TRAFFIC

G. D. Nugent, assistant to the assistant general passenger traffic manager of the Canadian National, with headquarters at Montreal, Que., has been appointed general agent, passenger department, with headquarters at St. Paul, Minn., succeeding **A. H. Davis.**

J. B. McCorkle, general coal freight agent on the Pennsylvania, with headquarters at Pittsburgh, Pa., has been promoted to general freight agent, with the same headquarters, succeeding **V. C. Williams,** who has retired. **A. S. Jennings,** coal freight agent at Philadelphia, Pa., has been promoted to general coal freight agent at Pittsburgh, to succeed Mr. McCorkle. **E. W. Fisher,** division freight agent at Cincinnati, Ohio, has been promoted to the newly-created position of general coal freight agent with headquarters at Chicago. **J. H. Cross,** coal freight agent at Pittsburgh, has been promoted to coal and ore agent, with headquarters at Cleveland, Ohio. **P. G. Barenbach,** chief of rate bureau at Philadelphia, has been promoted

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That is just what the Elesco exhaust steam injector does.

A substantial portion of the exhaust steam is used to preheat the boiler feed—thereby returning otherwise wasted heat to the boiler for use again—and, at the same time, injecting the preheated feed water into the boiler.

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The Elesco exhaust steam injector is a thoroughly proved economy—and capacity-increasing device. Its initial cost is low. Its operation is simple. And large numbers are in daily service on leading railroads throughout the world.

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to assistant general freight agent, with the same headquarters.

S. S. Butler, general traffic manager of the St. Louis-San Francisco at St. Louis, has been appointed assistant chief traffic officer succeeding **J. N. Cornatzar,** who has been appointed executive traffic representative at Birmingham. **J. R. Coulter,** traffic manager at Kansas City, has been promoted to general traffic manager at St. Louis, succeeding Mr. Butler. **W. S. Merchant,** assistant general traffic manager at St. Louis, has been appointed traffic manager at Chicago, succeeding **W. B. Wells. J. G. Weaver,** general agent at Oklahoma City, has been promoted to traffic manager at the same point, succeeding **W. L. Huggins, Jr.,** who has been transferred to Kansas City to replace Mr. Coulter. **J. W. Nourse,** general passenger agent at St. Louis, has been appointed passenger traffic manager at the same point.

OBITUARY

Dr. R. B. Slocum, medical director of the Atlantic Coast Line, died in Johns Hopkins Hospital, Baltimore, Md., on November 16, after an operation.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled From 147 Monthly Reports of Revenues and Expenses Representing 149 Class I Steam Railways

FOR THE MONTH OF SEPTEMBER, 1934 AND 1933

Item	United States		Eastern District		Southern District		Western District	
	1934	1933	1934	1933	1934	1933	1934	1933
Average number of miles operated	238,979	240,558	59,155	59,438	45,393	45,622	134,431	135,498
Revenues:								
Freight	$220,492,091	$235,445,912	$85,880,280	$100,272,488	$41,345,927	$44,588,525	$93,265,884	$90,584,899
Passenger	30,607,154	32,013,888	18,135,116	19,104,945	3,647,492	3,517,167	8,824,546	9,391,776
Mail	7,203,390	7,291,126	2,768,094	2,880,794	1,239,195	1,250,295	3,196,101	3,160,037
Express	4,237,955	4,285,422	1,833,490	2,255,136	701,990	601,763	1,702,475	1,428,523
All other transportation	6,569,942	6,440,135	3,077,825	3,436,608	650,789	584,129	2,841,328	2,419,398
Incidental	5,791,426	6,133,507	2,890,117	3,200,402	765,311	816,296	2,135,998	2,116,809
Joint facility—Cr.	792,173	715,659	259,336	249,198	159,852	131,491	372,985	334,970
Joint facility—Dr.	183,415	166,810	42,454	46,901	19,700	20,282	121,261	99,627
Railway operating revenues	275,510,716	292,158,839	114,801,804	131,352,670	48,490,856	51,469,384	112,218,056	109,336,785
Expenses:								
Maintenance of way and structures	31,501,217	31,603,107	12,177,679	13,198,865	5,931,400	5,642,415	13,392,138	12,761,827
Maintenance of equipment*	50,507,566	54,199,249	21,285,418	25,209,619	9,704,524	10,086,441	19,517,624	18,903,189
Traffic	7,386,247	7,066,608	2,857,150	2,688,914	1,386,772	1,323,657	3,142,325	3,054,037
Transportation	96,653,584	92,711,056	42,941,883	43,438,457	15,699,487	15,061,377	38,012,214	34,211,222
Miscellaneous operations	2,357,024	2,208,156	1,097,707	1,115,160	229,117	224,449	1,030,200	868,547
General	*a* 15,683,935	*b* 11,872,865	6,611,964	5,196,261	2,478,039	2,014,384	6,593,932	4,662,220
Transportation for investment—Cr.	289,220	226,333	87,882	60,410	16,167	31,848	185,171	134,075
Railway operating expenses	203,800,353	199,434,708	86,883,919	90,786,866	35,413,172	34,320,875	81,503,262	74,326,967
Net revenue from railway operations	71,710,363	92,724,131	27,917,885	40,565,804	13,077,684	17,148,509	30,714,794	35,009,818
Railway tax accruals	19,939,479	22,066,461	8,450,887	9,573,940	3,926,609	4,046,673	7,561,983	8,445,848
Uncollectible railway revenues	69,409	103,932	29,805	32,199	10,192	15,335	29,412	56,398
Railway operating income	51,701,475	70,553,738	19,437,193	30,959,665	9,140,883	13,086,501	23,123,399	26,507,572
Equipment rents—Dr. balance	7,606,535	6,846,012	3,391,970	3,641,208	204,202	*d 101,450*	4,010,363	3,306,254
Joint facility rent—Dr. balance	3,074,455	3,098,844	1,713,787	1,810,454	334,716	285,838	1,025,952	1,002,552
Net railway operating income	41,020,485	60,608,882	14,331,436	25,508,003	8,601,965	12,902,113	18,087,084	22,198,766
Ratio of expenses to revenues (per cent)	73.97	68.26	75.68	69.12	73.03	66.68	72.63	67.98
* Includes:								
Depreciation	15,425,398	15,271,784	6,834,740	6,255,753	2,897,989	2,965,315	5,692,669	6,050,716
Retirements	379,178	1,430,816	60,300	973,428	207,530	166,813	111,348	290,575

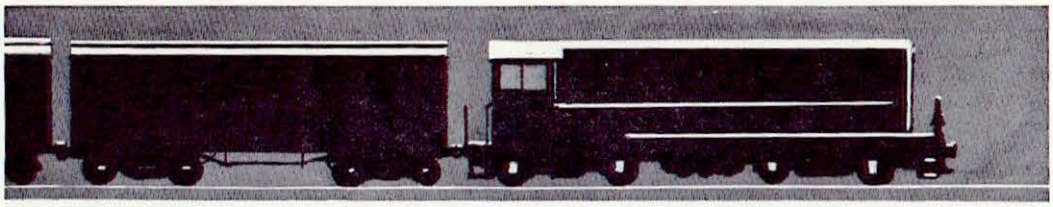
FOR NINE MONTHS ENDED WITH SEPTEMBER, 1934 AND 1933

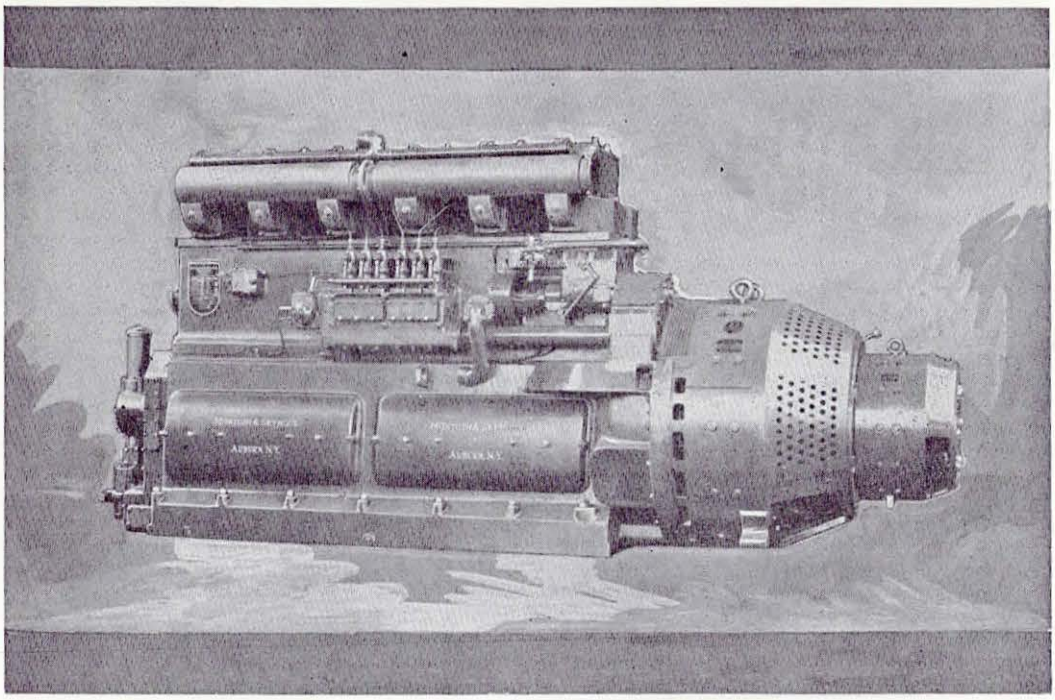
Average number of miles operated	239,252	241,065	59,192	59,559	45,452	45,789	134,608	135,717
Revenues:								
Freight	$1,986,691,466	$1,851,689,847	$851,087,392	$794,201,550	$391,790,479	$377,608,497	$743,813,595	$679,879,800
Passenger	260,786,397	245,222,701	156,363,736	146,430,136	33,441,980	28,790,283	70,980,681	70,002,282
Mail	66,588,524	67,199,263	25,800,687	26,378,672	11,693,953	11,537,508	29,093,884	29,283,083
Express	39,984,852	32,852,806	16,805,695	14,203,340	7,949,570	6,391,055	15,229,587	12,258,411
All other transportation	56,465,027	54,080,240	29,238,054	30,093,507	5,289,132	4,776,935	21,937,841	19,209,798
Incidental	48,371,456	42,748,538	25,738,515	23,694,823	6,976,099	6,113,842	15,656,842	12,939,873
Joint facility—Cr.	6,881,834	6,096,483	2,146,748	1,976,563	1,596,868	1,369,743	3,138,218	2,750,177
Joint facility—Dr.	1,698,795	1,653,571	448,117	450,422	152,026	169,172	1,098,652	1,033,977
Railway operating revenues	2,464,070,761	2,298,236,307	1,106,732,710	1,036,528,169	458,586,055	436,418,691	898,751,996	825,289,447
Expenses:								
Maintenance of way and structures	279,658,834	242,310,047	111,856,130	96,605,666	53,654,637	48,349,145	114,148,067	97,355,236
Maintenance of equipment†	485,822,162	440,202,736	218,575,046	197,762,623	91,414,658	83,381,447	175,832,458	159,058,666
Traffic	66,980,357	64,101,130	25,428,135	23,825,017	12,700,809	12,210,760	28,851,413	28,065,353
Transportation	868,769,760	796,431,761	407,562,046	370,510,957	144,806,720	134,276,629	316,400,994	291,644,175
Miscellaneous operations	20,103,045	17,286,523	9,778,301	8,686,850	2,348,725	1,992,600	7,976,019	6,607,073
General	*c* 117,154,116	*e* 107,591,280	50,767,151	46,358,181	19,603,040	18,369,306	46,783,925	42,863,793
Transportation for investment—Cr.	2,210,830	2,041,314	640,271	729,256	227,765	235,053	1,342,794	1,077,005
Railway operating expenses	1,836,277,444	1,665,882,163	823,326,538	743,020,038	324,300,824	298,344,834	688,650,082	624,517,291
Net revenue from railway operations	627,793,317	632,354,144	283,406,172	293,508,131	134,285,231	138,073,857	210,101,914	200,772,156
Railway tax accruals	188,743,346	199,633,603	78,903,809	82,525,389	37,297,803	38,055,738	72,541,734	79,052,476
Uncollectible railway revenues	851,266	782,215	449,016	318,672	138,398	97,494	263,852	366,049
Railway operating income	438,198,705	431,938,326	204,053,347	210,664,070	96,849,030	99,920,625	137,296,328	121,353,631
Equipment rents—Dr. balance	68,309,519	63,215,918	33,656,842	32,693,732	4,927,668	3,751,447	29,725,009	26,770,739
Joint facility rent—Dr. balance	27,279,344	27,264,613	15,087,433	14,796,220	3,316,552	3,004,261	8,875,359	9,464,132
Net railway operating income	342,609,842	341,457,795	155,309,072	163,174,118	88,604,810	93,164,917	98,695,960	85,118,760
Ratio of expenses to revenues (per cent)	74.52	72.49	74.39	71.68	70.72	68.36	76.62	75.67
† Includes:								
Depreciation	139,099,652	135,621,376	61,448,038	53,766,356	26,058,247	27,040,660	51,593,367	54,814,360
Retirements	3,935,127	10,628,768	871,364	8,183,861	1,438,721	796,382	1,625,042	1,648,525

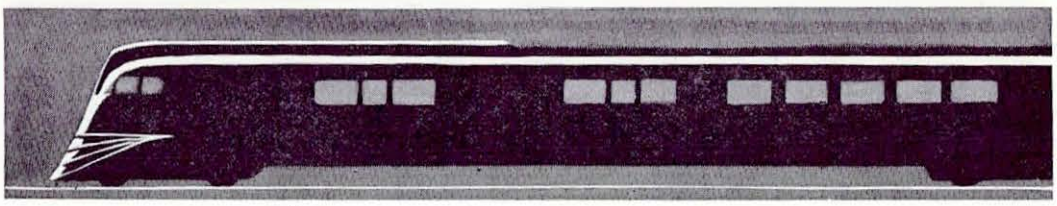
a Includes accruals on account of pensions, as follows: Under Federal Retirement Act, $3,463,400; under previously existing plan, $3,130,406, but excludes pension accruals held in suspense and not charged to operating expenses.
b Includes accruals on account of pensions, under previously existing plan, $2,820,753.
c Includes accruals on account of pensions, as follows: Under Federal Retirement Act, $7,130,449; under previously existing plan, $26,449,116, but excludes pension accruals held in suspense and not charged to operating expenses.
d Deficit or other reverse items.
e Includes accruals on account of pensions, under previously existing plan, $25,017,275.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Table of Operating Statistics of Railways begins on next left-hand page







RAILROAD DIESELS FOR RAILROAD MEN

Reliability in service with low cost and ease of maintenance are the factors of prime importance to a buyer of Diesel locomotives.

These factors predominated all others at all times in the minds of the designers of the Alco unit.

AMERICAN LOCOMOTIVE COMPANY

ALCO DIESEL

30 CHURCH STREET · NEW YORK · N·Y·

Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of September,

Region, road, and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross Excluding locomotives and tenders	Ton-miles (thousands): Net Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany....1934	402	117,166	121,066	7,876	2,898	68.1	150,097	50,051	58	42	41.7	14
1933	402	123,132	127,942	8,685	3,240	69.5	162,119	54,321	59	46	43.6	12
Boston & Maine....1934	2,016	240,974	268,748	27,349	8,228	69.1	441,029	166,297	110	167	60.2	11
1933	2,059	262,663	294,931	28,278	9,044	68.1	483,058	180,754	120	166	57.9	10
N. Y., New H. & Hartf....1934	2,049	304,962	371,809	17,472	9,598	67.3	514,736	196,118	217	135	38.5	42
1933	2,044	329,786	401,722	21,480	10,650	66.1	570,528	212,189	210	148	41.5	28
Great Lakes Region:												
Delaware & Hudson....1934	848	191,007	254,164	27,380	6,291	61.9	392,088	176,489	247	29	10.5	155
1933	848	212,967	289,858	34,492	7,280	61.2	460,307	208,625	253	25	9.1	141
Del., Lack. & Western....1934	992	326,087	362,803	47,613	10,472	66.9	595,192	229,584	184	73	28.5	45
1933	998	335,480	373,628	49,041	11,021	66.3	631,833	250,923	195	70	26.4	56
Erie (incl. Chi. & Erie)...1934	2,304	646,644	678,234	53,917	27,780	63.3	1,699,848	626,232	322	170	34.5	88
1933	2,316	685,819	714,933	65,289	27,572	60.8	1,725,835	624,549	301	196	39.4	64
Grand Trunk Western....1934	1,007	176,295	178,102	1,676	4,613	60.7	279,521	94,591	67	71	51.6	..
1933	1,008	185,646	186,952	2,238	4,727	59.6	286,744	96,420	74	74	50.3	6
Lehigh Valley....1934	1,335	358,268	373,955	32,708	10,609	63.9	650,639	256,281	185	126	40.6	33
1933	1,341	385,296	405,884	41,261	11,773	64.5	715,144	293,026	165	152	48.0	7
Michigan Central....1934	1,967	351,101	352,302	10,916	10,856	60.2	644,208	211,571	142	42	23.0	41
1933	1,957	365,441	365,535	14,213	11,618	59.0	694,316	223,630	132	56	30.1	25
New York Central....1934	6,405	1,345,358	1,432,986	103,523	49,105	60.2	3,148,437	1,306,284	563	528	48.4	63
1933	6,426	1,441,503	1,548,419	104,899	53,344	60.1	3,374,501	1,386,590	560	600	51.7	18
New York, Chi. & St. L....1934	1,661	453,078	457,552	4,662	14,610	62.0	857,962	304,792	132	49	27.2	34
1933	1,660	484,409	511,480	5,458	13,902	60.4	833,851	290,616	132	63	32.2	15
Pere Marquette....1934	2,189	292,381	299,728	2,525	7,051	61.4	443,616	172,425	112	38	25.7	20
1933	2,254	310,624	319,336	3,013	6,859	58.5	451,493	172,826	112	59	34.3	11
Pitts. & Lake Erie....1934	234	61,716	62,668	....	2,429	54.6	213,807	115,505	35	37	51.4	11
1933	231	62,085	63,487	1,112	2,255	59.3	183,166	100,979	33	38	53.9	6
Wabash....1934	2,445	496,445	505,734	11,113	14,913	63.6	878,947	296,767	163	170	51.1	42
1933	2,453	494,351	501,306	10,634	14,878	61.1	882,822	281,707	177	167	48.6	22
Central Eastern Region:												
Baltimore & Ohio....1934	6,263	1,208,508	1,472,935	165,922	37,692	61.2	2,498,247	1,086,131	803	522	39.4	242
1933	6,282	1,404,087	1,712,299	204,999	42,129	59.2	2,975,738	1,354,817	727	589	44.8	85
Big Four Lines....1934	2,655	546,723	566,078	24,363	16,094	60.8	1,012,289	431,647	181	180	49.9	18
1933	2,660	589,386	611,076	24,682	17,250	61.0	1,096,243	476,249	239	162	40.4	25
Central of New Jersey....1934	690	127,016	141,753	26,460	4,259	58.9	291,481	136,268	77	92	54.3	24
1933	692	133,018	149,481	27,516	4,543	56.6	320,043	147,142	106	67	38.5	45
Chicago & Eastern Ill....1934	939	159,052	159,831	2,605	3,699	63.1	232,265	96,407	50	59	54.2	7
1933	939	172,809	174,526	2,817	3,879	63.3	239,959	101,909	61	109	64.3	12
Elgin, Joliet & Eastern....1934	446	70,750	72,575	1,093	1,609	58.8	122,765	58,430	63	25	28.6	15
1933	446	80,229	80,756	1,163	1,769	57.9	145,130	72,536	69	20	22.1	17
Long Island....1934	396	25,984	26,928	12,730	294	54.2	21,747	8,633	29	28	49.3	1
1933	396	31,507	32,390	12,772	356	54.6	25,465	9,579	29	23	43.7	..
Pennsylvania System....1934	9,998	2,287,028	2,550,186	287,298	83,748	63.0	5,467,578	2,417,542	1,532	933	37.9	427
1933	10,082	2,640,461	2,932,288	321,090	91,321	62.4	6,125,771	2,757,082	1,470	953	39.3	288
Reading....1934	1,454	356,518	386,059	41,094	10,128	59.5	729,510	342,903	277	105	27.6	95
1933	1,454	381,234	415,004	43,905	10,817	59.3	796,384	370,779	262	109	29.3	92
Pocahontas Region:												
Chesapeake & Ohio....1934	3,104	804,093	848,712	36,262	35,684	54.7	3,051,076	1,636,071	440	114	20.5	119
1933	3,146	840,389	887,604	36,657	36,955	55.3	3,165,429	1,716,886	481	202	29.6	160
Norfolk & Western....1934	2,162	560,483	585,297	27,090	22,569	59.1	1,821,642	938,247	384	40	9.4	144
1933	2,162	618,713	645,163	28,555	25,057	58.1	2,164,277	1,145,958	412	60	12.8	169
Southern Region:												
Atlantic Coast Line....1934	5,146	435,209	435,913	6,004	8,831	64.7	457,004	158,760	328	131	28.5	87
1933	5,144	424,032	425,368	5,739	8,249	63.7	444,107	160,646	356	124	25.9	131
Central of Georgia....1934	1,886	199,606	200,679	3,136	4,566	70.0	241,632	92,189	98	43	30.5	..
1933	1,886	194,924	195,765	2,585	4,253	70.0	220,462	81,015	107	36	25.3	..
Ill. Cent. (incl. Y. & M. V.)..1934	6,580	1,333,544	1,343,540	25,468	31,933	60.4	2,088,296	842,476	606	323	34.8	16
1933	6,644	1,248,255	1,263,818	21,525	28,709	59.3	1,894,030	753,345	580	346	37.4	13
Louisville & Nashville....1934	5,049	904,159	972,927	23,763	20,286	58.6	1,409,100	659,023	316	300	48.7	22
1933	5,112	944,624	1,023,846	29,459	21,816	58.5	1,559,926	756,105	338	310	47.8	13
Seaboard Air Line....1934	4,296	403,605	410,371	3,411	9,062	64.0	514,048	186,050	195	86	30.6	23
1933	4,303	379,222	387,424	2,192	8,757	66.0	493,560	188,990	219	69	24.0	39
Southern....1934	6,599	991,734	1,006,793	17,474	23,041	66.9	1,239,458	459,646	569	285	33.4	73
1933	6,602	1,027,309	1,041,897	17,147	23,696	67.3	1,274,626	476,810	693	222	24.3	194
Northwestern Region:												
Chi. & North Western....1934	8,443	1,055,334	1,127,655	26,634	27,317	59.2	1,682,240	560,040	585	235	28.7	164
1933	8,443	970,178	1,035,332	24,807	24,474	60.4	1,529,414	525,578	576	228	28.3	126
Chicago Great Western....1934	1,463	266,065	266,547	11,243	8,221	58.4	516,200	175,828	61	35	36.6	2
1933	1,463	216,622	217,478	16,542	6,696	56.6	429,862	143,486	66	32	33.1	7
Chi., Milw., St. P. & Pac..1934	11,154	1,375,136	1,451,312	66,463	36,213	60.0	2,237,507	852,961	543	339	38.5	127
1933	11,211	1,163,588	1,237,876	52,160	31,036	60.3	1,951,938	763,915	664	235	26.1	262
Chi., St. P., Minneap. & Om....1934	1,644	231,883	242,310	10,239	5,095	63.5	305,147	120,139	123	35	22.3	48
1933	1,681	206,655	215,158	9,509	4,386	66.3	262,008	109,373	128	27	17.4	60
Great Northern....1934	8,302	872,176	880,482	26,227	29,519	60.3	1,886,821	760,873	441	156	26.1	73
1933	8,424	711,312	716,883	21,538	23,681	58.9	1,612,740	711,223	472	141	23.1	117
Minneap., St. P. & S. St. M....1934	4,280	370,631	377,411	3,010	8,701	61.7	504,614	199,930	119	41	25.6	1
1933	4,291	340,936	346,051	2,848	8,029	63.6	476,784	206,381	128	31	19.4	9
Northern Pacific....1934	6,414	695,547	760,706	53,545	22,273	64.1	1,295,836	499,967	358	106	22.8	15
1933	6,415	582,950	631,500	41,495	18,430	66.1	1,081,597	443,640	360	157	30.3	39
Oreg.-Wash. R. R. & Nav...1934	2,152	182,273	189,838	12,816	4,652	65.7	270,939	104,256	86	40	31.6	13
1933	2,174	156,237	163,469	11,910	4,133	69.0	233,030	91,763	88	39	30.4	22
Central Western Region:												
Alton....1934	921	203,003	213,681	1,698	4,320	58.1	278,430	89,707	57	37	38.9	6
1933	947	178,114	181,936	1,043	3,791	56.0	251,107	82,820	59	40	40.3	1
Atch., Top. & S. Fe (incl. P. & S. F.)....1934	11,407	1,520,374	1,615,081	68,327	43,743	61.4	2,715,179	864,786	578	316	35.4	119
1933	11,586	1,324,313	1,428,806	67,298	37,691	63.2	2,305,124	753,348	630	295	31.9	198
Chi., Burl. & Quincy....1934	9,059	1,336,206	1,394,682	42,562	34,556	57.9	2,093,273	813,298	450	114	20.2	2
1933	9,157	1,126,575	1,172,792	36,754	29,923	60.0	1,798,000	728,398	445	108	19.5	21
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf)....1934	8,304	1,078,300	1,099,105	7,449	24,562	61.3	1,501,458	571,066	389	233	37.4	77
1933	8,333	967,089	985,755	5,505	21,006	59.9	1,301,612	485,777	457	157	25.6	98
Denver & R. G. Wn....1934	2,636	343,223	376,174	39,216	8,746	63.3	518,045	195,265	180	43	19.3	3
1933	2,478	249,595	280,119	34,393	7,539	60.2	469,052	168,573	208	34	14.0	30
Los Angeles & Salt Lake..1934	1,224	164,892	189,206	29,163	4,808	63.5	285,375	108,326	72	22	23.0	3
1933	1,239	150,068	166,997	21,002	4,311	65.0	256,655	100,083	71	32	31.0	5
Oregon Short Line....1934	2,484	350,201	365,651	24,072	9,270	60.4	581,187	208,562	131	51	28.1	13
1933	2,495	292,952	309,564	24,412	7,851	60.5	486,752	177,667	130	66	33.4	31
Southern Pacific—Pacific Lines....1934	8,607	1,129,524	1,221,484	138,767	36,795	62.9	2,289,103	791,568	559	289	34.1	148
1933	8,836	1,057,387	1,131,008	123,128	32,668	61.6	2,032,833	667,434	536	364	40.4	143
Union Pacific....1934	3,768	1,191,477	1,215,401	46,966	38,487	58.3	2,401,993	771,218	318	100	24.0	43
1933	3,768	915,313	940,282	43,500	33,021	58.0	2,060,037	635,400	350	112	24.3	134
Southwestern Region:												
Gulf, Colo. & S. Fe....1934	1,906	171,525	173,845	2,509	4,821	67.5	284,849	112,979	86	40	31.7	22
1933	1,943	171,539	173,110	2,461	4,455	66.8	269,927	111,709	91	38	29.2	23
Mo.-Kans.-Texas Lines....1934	3,282	360,585	363,851	4,744	9,734	60.7	585,337	204,337	116	81	41.1	30
1933	3,282	368,157	370,371	4,728	9,635	62.1	561,506	201,674	164	68	29.5	75
Missouri Pacific....1934	7,330	1,183,092	1,216,998	27,769	32,086	60.6	2,004,608	754,119	412	141	25.4	115
1933	7,384	1,107,229	1,140,145	24,502	30,030	60.7	1,874,311	693,654	402	159	28.3	115
St. Louis-San Francisco....1934	5,041	667,306	675,124	8,941	14,658	60.5	890,418	337,282	384	79	17.1	128
1933	5,191	599,755	604,408	7,198	13,260	60.4	819,594	315,275	402	79	16.4	143
St. Louis Southwestern Lines....1934	1,798	202,713	207,365	2,752	5,199	66.6	288,212	108,595	91	31	25.2	12
1933	1,872	193,810	197,395	2,522	4,258	64.8	243,158	90,165	98	39	28.5	18
Texas & New Orleans....1934	4,433	473,694	473,764	5,002	11,073	62.9	661,089	242,443	242	53	18.0	71
1933	4,474	440,457	440,510	5,670	9,555	62.9	567,626	204,909	211	90	29.7	53
Texas & Pacific....1934	1,945	231,116	231,116	1,651	7,528	67.9	429,173	159,528	146	84	36.5	80
1933	1,946	196,971	196,971	1,166	**6,308**	**66.5**	368,376	137,653	173	64	26.9	76

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

1934, Compared with September, 1933, for Roads with Annual Operating Revenues Above $25,000,000

Region, road, and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany.....1934	2,993	3,466	6,459	25.9	21,612	1,281	427	17.3	258	22.0	4,153	158	43.2
1933	3,926	3,369	7,295	32.2	21,164	1,317	441	16.8	248	21.3	4,507	149	43.6
Boston & Maine.....1934	8,589	5,890	14,479	15.2	25,492	1,830	690	20.2	383	27.4	2,750	101	35.6
1933	8,873	7,858	16,731	15.7	24,913	1,839	688	20.0	360	26.5	2,926	103	37.7
N. Y., New H. & Hartf.....1934	16,319	9,664	25,983	13.2	24,127	1,688	643	20.4	252	18.3	3,190	106	36.9
1933	15,189	10,078	25,267	11.1	25,573	1,730	643	19.9	280	21.2	3,460	107	39.4
Great Lakes Region:													
Delaware & Hudson.....1934	11,383	2,559	13,942	4.2	27,119	2,053	924	28.1	422	24.3	6,935	109	34.1
1933	10,582	3,061	13,643	4.1	27,253	2,161	980	28.7	510	29.0	8,200	103	38.9
Del., Lack. & Western.....1934	16,496	4,266	20,762	12.3	27,920	1,825	704	21.9	369	25.1	7,716	146	53.2
1933	17,120	4,597	21,717	13.0	27,116	1,883	748	22.8	385	25.5	8,380	131	53.1
Erie (incl. Chi. & Erie)...1934	27,852	12,715	40,567	6.5	42,865	2,629	968	22.5	515	36.0	9,060	92	49.6
1933	32,464	13,690	46,154	5.4	39,431	2,516	911	22.7	451	32.8	8,989	96	52.3
Grand Trunk Western.....1934	4,797	5,770	10,567	16.9	28,805	1,586	537	20.5	298	24.0	3,132	98	43.5
1933	5,600	7,950	13,550	22.1	28,228	1,545	519	20.4	237	19.5	3,187	93	42.7
Lehigh Valley.....1934	17,900	4,956	22,856	13.3	31,838	1,816	715	24.2	374	24.2	6,400	132	43.5
1933	18,523	6,552	25,075	19.9	30,784	1,856	761	24.9	390	24.3	7,285	136	47.0
Michigan Central.....1934	19,061	18,483	37,544	13.1	32,784	1,835	603	19.5	188	16.0	3,585	106	65.9
1933	23,845	19,376	43,221	11.4	34,510	1,900	612	19.2	172	15.2	3,809	107	67.3
New York Central.....1934	58,059	58,619	116,678	23.6	36,736	2,340	971	26.6	373	23.3	6,798	94	46.9
1933	67,753	62,476	130,229	22.7	35,550	2,341	962	26.0	355	22.7	7,193	96	47.5
New York, Chi. & St. L....1934	8,890	6,654	15,544	4.9	33,023	1,894	673	20.9	654	50.6	6,118	94	85.1
1933	9,509	6,760	16,269	6.0	30,541	1,721	600	20.9	595	47.2	5,835	97	88.2
Pere Marquette.....1934	11,908	4,411	16,319	3.5	25,033	1,517	590	24.5	352	23.5	2,626	91	67.0
1933	12,684	4,708	17,392	2.9	24,511	1,454	556	25.2	331	22.5	2,556	88	62.9
Pitts. & Lake Erie.....1934	16,063	9,275	25,338	48.4	49,990	3,464	1,872	47.6	152	5.9	16,476	91	28.9
1933	15,011	9,915	24,926	26.8	43,736	2,950	1,626	44.8	135	5.1	14,559	107	30.2
Wabash 1934	14,516	8,001	22,517	3.7	35,227	1,770	598	19.9	439	34.7	4,046	107	51.9
1933	14,926	8,164	23,090	6.2	35,179	1,786	570	18.9	407	35.2	3,828	100	49.6
Central Eastern Region:													
Baltimore & Ohio.....1934	82,965	21,542	104,507	19.1	26,766	2,067	899	28.8	346	19.6	5,781	138	41.2
1933	87,286	25,945	113,231	19.7	26,489	2,119	965	32.2	399	21.0	7,188	142	48.6
Big Four Lines.....1934	18,813	19,642	38,455	15.2	31,736	1,852	790	26.8	374	22.9	5,420	110	54.5
1933	19,975	21,604	41,579	16.5	32,053	1,860	808	27.6	382	22.7	5,967	109	52.8
Central of New Jersey.....1934	15,706	6,831	22,537	34.2	27,323	2,295	1,073	32.0	202	10.7	6,584	131	33.1
1933	16,360	7,033	23,393	30.9	28,111	2,406	1,106	32.4	210	11.4	7,088	122	34.1
Chicago & Eastern Ill.....1934	4,088	2,397	6,485	12.8	25,914	1,460	606	26.1	496	30.1	3,423	117	49.6
1933	5,996	2,482	8,478	23.4	23,967	1,389	590	26.3	401	24.1	3,618	118	34.8
Elgin, Joliet & Eastern.....1934	9,081	3,582	12,663	23.5	16,700	1,735	826	36.3	154	7.2	4,366	111	27.9
1933	9,445	3,809	13,254	19.9	15,722	1,809	904	41.0	182	7.7	5,421	109	30.7
Long Island 1934	766	3,104	3,870	2.5	6,133	837	332	29.4	74	4.7	726	276	23.2
1933	765	3,677	4,442	1.3	6,366	808	304	26.9	72	4.9	806	255	28.8
Pennsylvania System.....1934	242,237	45,574	287,811	13.1	32,790	2,391	1,057	28.9	280	15.4	8,060	115	38.4
1933	241,097	52,130	293,227	12.0	32,317	2,320	1,044	30.2	313	16.6	9,116	118	44.8
Reading 1934	33,123	7,985	41,108	9.5	25,578	2,046	962	33.9	278	13.8	7,863	147	37.3
1933	34,624	8,831	43,455	22.5	24,984	2,089	973	34.3	284	14.0	8,503	143	41.2
Pocahontas Region:													
Chesapeake & Ohio.....1934	43,527	11,498	55,025	2.1	52,714	3,794	2,035	45.8	991	39.5	17,571	70	53.3
1933	44,073	10,722	54,795	2.5	51,555	3,767	2,043	46.5	1,044	40.7	18,190	70	45.1
Norfolk & Western.....1934	34,616	4,315	38,931	3.7	47,946	3,250	1,674	41.6	803	32.7	14,463	97	48.2
1933	34,687	4,838	39,525	3.7	50,940	3,498	1,852	45.7	966	36.4	17,666	94	47.5
Southern Region:													
Atlantic Coast Line.....1934	26,643	4,414	31,057	23.4	17,281	1,050	365	18.0	170	14.7	1,028	116	32.1
1933	27,206	4,328	31,534	24.5	17,421	1,047	379	19.5	170	13.7	1,041	121	30.0
Central of Georgia.....1934	6,771	2,030	8,801	28.7	21,291	1,211	462	20.2	349	24.7	1,630	121	48.2
1933	7,268	2,035	9,303	25.9	20,024	1,131	416	19.0	290	21.8	1,432	125	46.2
Ill. Cent. (incl. Y. & M. V.).1934	51,894	16,597	68,491	39.7	25,177	1,566	632	26.4	410	25.7	4,268	128	49.1
1933	53,716	13,994	67,710	30.5	23,925	1,517	604	26.2	371	23.8	3,780	127	46.3
Louisville & Nashville.....1934	47,207	7,669	54,876	35.1	24,224	1,558	729	32.5	400	21.0	4,351	129	53.9
1933	48,810	7,091	55,901	28.4	24,047	1,651	800	34.7	451	22.2	4,930	128	54.2
Seaboard Air Line.....1934	11,379	3,811	15,190	7.0	20,951	1,274	461	20.5	408	31.1	1,444	118	49.0
1933	13,070	3,394	16,464	10.0	20,573	1,302	498	21.6	383	26.9	1,464	118	45.1
Southern 1934	27,296	13,667	40,963	13.9	20,717	1,250	463	19.9	374	28.0	2,322	143	40.0
1933	31,638	17,998	49,636	21.2	20,244	1,241	464	20.1	320	23.7	2,408	143	38.6
Northwestern Region:													
Chi. & North Western.....1934	42,974	21,090	64,064	13.8	24,558	1,594	531	20.5	291	24.0	2,211	122	46.9
1933	44,756	18,062	62,818	10.6	23,903	1,576	542	21.5	279	21.5	2,075	117	44.0
Chicago Great Western.....1934	2,551	3,710	6,261	2.4	35,451	1,940	661	21.4	936	75.0	4,006	123	96.5
1933	3,305	3,109	6,414	6.1	34,809	1,984	662	21.4	746	61.5	3,268	121	79.4
Chi., Milw., St. P. & Pac..1934	56,644	17,023	73,667	5.9	25,476	1,627	620	23.6	386	27.3	2,549	117	57.3
1933	58,663	15,451	74,114	4.3	26,017	1,678	657	24.6	344	23.1	2,271	112	47.8
Chi., St. P., Minneap. & Om. 1934	2,029	7,695	9,724	11.0	19,198	1,316	518	23.6	412	27.5	2,436	112	53.1
1933	1,817	6,278	8,095	10.2	18,484	1,268	529	24.9	450	27.3	2,169	108	48.3
Great Northern.....1934	41,522	14,466	55,988	6.6	31,782	2,163	872	25.8	453	29.1	3,055	112	50.7
1933	42,872	14,930	57,802	4.8	33,583	2,267	1,000	30.0	410	23.2	2,814	105	40.2
Minneap., St. P. & S. St. M. 1934	15,609	3,593	19,202	4.5	20,847	1,361	539	23.0	347	24.5	1,557	99	79.3
1933	18,580	3,434	22,014	4.1	21,387	1,398	605	25.7	313	19.2	1,603	96	73.1
Northern Pacific.....1934	36,138	6,731	42,869	12.0	28,377	1,863	719	22.4	389	27.0	2,598	151	58.6
1933	41,033	4,794	45,827	12.2	27,841	1,855	761	24.1	323	20.3	2,305	144	43.4
Oreg.-Wash. R. R. & Nav...1934	7,796	2,390	10,186	6.4	23,383	1,486	572	22.4	341	23.2	1,615	152	53.7
1933	8,278	2,819	11,097	9.1	23,072	1,492	587	22.2	276	18.0	1,407	144	46.2
Central Western Region:													
Alton 1934	3,312	6,939	10,251	22.5	28,946	1,372	442	20.8	292	24.2	3,246	118	76.4
1933	3,113	6,278	9,391	18.5	27,643	1,410	465	21.8	294	24.0	2,915	111	62.2
Atch., Top. & S. Fe (incl. P. & S. F.).....1934	66,715	9,195	75,910	13.7	33,641	1,786	569	19.8	380	31.3	2,527	105	62.8
1933	68,626	8,279	76,905	13.6	32,071	1,741	569	20.0	327	25.8	2,167	102	53.9
Chi., Burl. & Quincy.....1934	33,568	14,791	48,359	8.4	27,173	1,567	609	23.5	561	41.1	2,993	119	84.9
1933	40,052	13,331	53,383	9.6	26,490	1,596	647	24.3	455	31.2	2,651	114	73.0
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf)....1934	30,630	12,399	43,029	21.0	23,835	1,392	530	23.2	442	31.1	2,292	130	59.3
1933	35,107	10,512	45,619	20.0	22,191	1,346	502	23.1	355	25.6	1,943	130	53.8
Denver & R. G. Wn.....1934	12,565	5,036	17,601	5.3	23,186	1,509	569	22.3	370	26.2	2,469	168	62.1
1933	13,521	4,495	18,016	4.7	26,654	1,879	675	22.4	312	23.2	2,268	159	43.3
Los Angeles & Salt Lake..1934	4,702	998	5,700	11.6	30,456	1,731	657	22.5	633	44.3	2,951	137	77.8
1933	4,540	885	5,425	11.8	29,232	1,710	667	23.2	615	40.8	2,692	135	61.1
Oregon Short Line.....1934	8,832	4,624	13,456	22.0	26,533	1,660	596	22.5	517	38.0	2,799	113	71.1
1933	9,014	4,185	13,199	17.5	26,081	1,662	606	22.6	449	32.8	2,374	121	56.7
Southern Pacific—Pacific Lines 1934	34,458	25,264	59,722	9.3	31,582	2,027	701	21.5	442	32.6	3,066	103	53.5
1933	38,850	23,519	62,369	12.4	29,380	1,923	631	20.4	357	28.4	2,518	108	46.4
Union Pacific.....1934	23,101	10,280	33,381	19.5	47,340	2,016	647	20.0	770	65.9	6,823	108	100.7
1933	24,899	9,081	33,980	18.2	49,406	2,251	694	19.2	623	55.8	5,621	101	71.0
Southwestern Region:													
Gulf, Colo. & S. Fe.....1934	8,481	1,541	10,022	8.9	25,966	1,661	659	23.4	376	23.8	1,975	101	46.7
1933	11,469	1,820	13,289	7.0	24,510	1,574	651	25.1	280	16.7	1,916	99	45.5
Mo.-Kans.-Texas Lines.....1934	5,598	3,700	9,298	3.2	28,070	1,623	567	21.0	733	57.5	2,075	86	62.5
1933	10,142	3,142	13,284	7.3	25,728	1,525	548	20.9	506	38.9	2,048	87	54.0
Missouri Pacific.....1934	20,795	20,675	41,470	4.4	29,587	1,694	637	23.5	606	42.6	3,429	120	75.1
1933	22,644	19,102	41,746	10.4	28,875	1,693	626	23.1	554	39.5	3,131	120	69.2
St. Louis-San Francisco....1934	21,861	5,259	27,120	7.3	23,067	1,334	505	23.0	415	29.8	2,230	133	49.3
1933	24,618	4,950	29,568	6.3	22,545	1,367	526	23.8	355	24.8	2,025	128	42.4
St. Louis Southwestern Lines 1934	3,447	2,438	5,885	7.1	24,193	1,422	536	20.9	615	44.2	2,013	98	57.4
1933	4,421	1,737	6,158	13.7	21,518	1,255	465	21.2	488	35.5	1,605	97	48.7
Texas & New Orleans.....1934	8,057	10,221	18,278	7.4	23,418	1,396	512	21.9	442	32.1	1,823	89	54.1
1933	8,785	10,205	18,990	6.6	20,908	1,289	465	21.4	360	26.7	1,527	90	49.5
Texas & Pacific.....1934	3,356	4,516	7,872	5.9	27,359	1,857	690	21.2	676	46.9	2,733	88	33.8
1933	3,775	4,269	8,044	6.2	26,912	1,870	699	21.8	570	39.3	2,358	80	27.9

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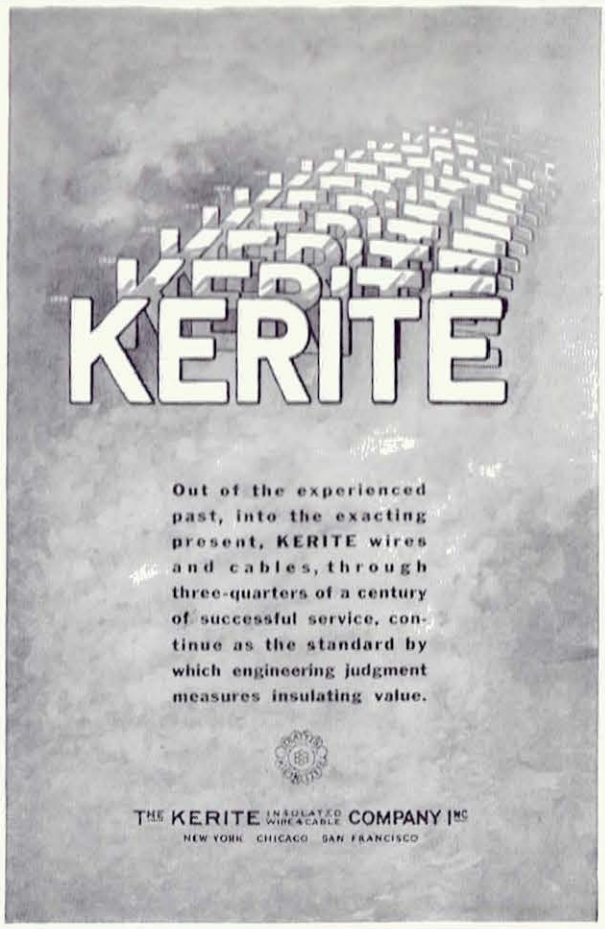
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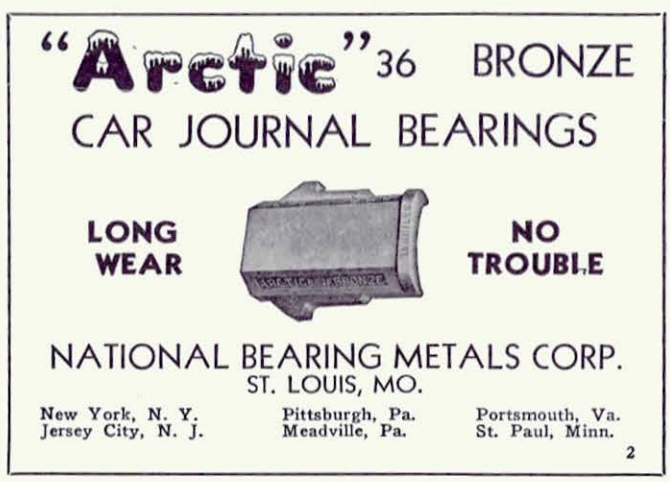

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New Address .....

..... Position ..... Company .....

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GOLD CAR HEATING & LIGHTING CO.
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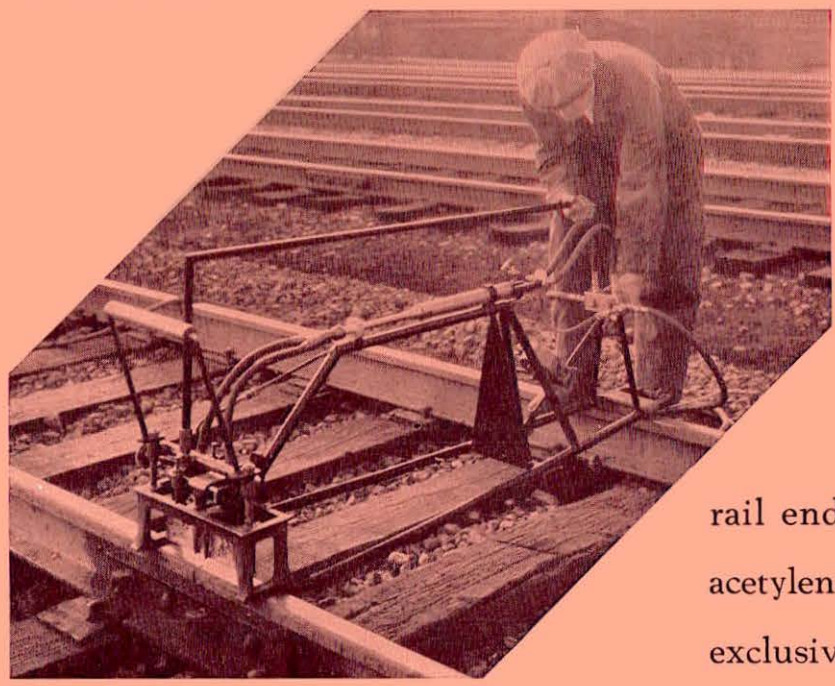

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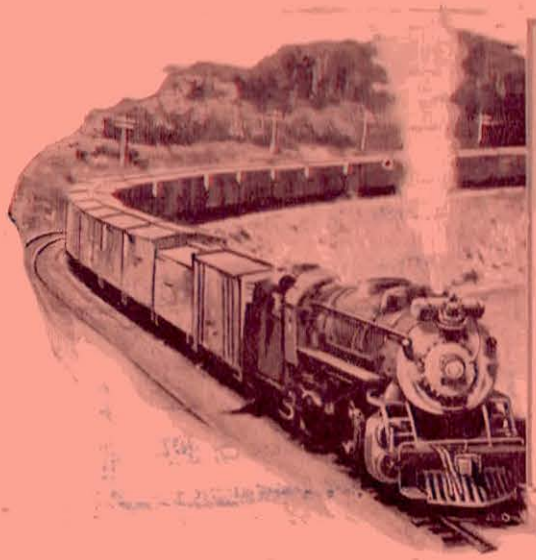

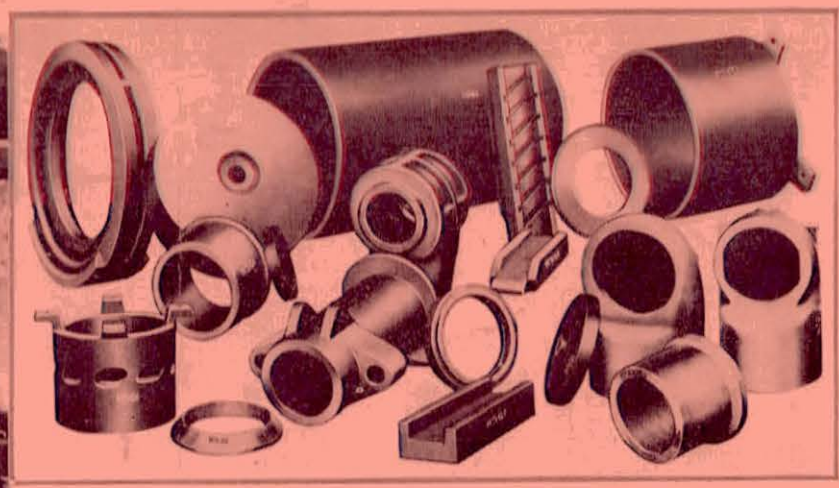

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